1ST PRINTING FEB. 01

SEGA

STD TYPE

Owner's Manual

SEGA ENTERPRISES, INC. USA

MANUAL NO. 420-6600-01

Warranty

Your new Sega Product is covered for a period of 90 days from the date of shipment. This certifies that the Printed Circuit Boards, Power Supplies and Monitor are to be free of defects in workmanship or materials under normal operating conditions. This also certifies that all Interactive Control Assemblies are to be free from defects in workmanship and materials under normal operating conditions. No other product in this machine is hereby covered.

Sellers sole liability in the event a warranted part described above fails shall be, at its option, to replace or repair the defective part during the warranty period. For Warranty claims, contact your Sega Distributor.

Should the Seller determine, by inspection that the product was caused by Accident, Misuse, Neglect, Alteration, Improper Repair, Installation or Testing, the warranty offered will be null and void.

Under no circumstances is the Seller responsible for any loss of profits, loss of use, or other damages.

This shall be the exclusive written Warranty of the original purchaser expressed in lieu of all other warranties expressed or implied. Under no circumstance shall it extend beyond the period of time listed above.

BEFORE USING THE PRODUCT, BE SURE TO READ THE FOLLOWING:

To maintain the safety:

To ensure the safe usage of the product, be sure to read the following before using the product. The following instructions are intended for the users, operators and the personnel in charge of the operation of the product. After carefully reading and sufficiently understanding the warning displays and cautions, handle the product appropriately. Be sure to keep this manual nearby the product or elsewhere convenient for referring to it when necessary.

Herein, explanations which require special attention are enclosed with dual lines. Depending on the potentially hazardous degrees, the terms of WARNING, CAUTION, etc. are used. Be sure to understand the contents of the displays before reading the text.

Indicates that mishandling the product by disregarding this warning will cause a potentially hazardous situation which can result in death or serious injury.

Indicates that mishandling the product by disregarding this caution will cause a slight hazardous situation which can result in personal injury and or material damage.

For the sage usage of the product, the following pictographs are used:

Indicates “HANDLE WITH CARE.” In order to protect the human body an equipment, this display is attached to places where the Owner’s Manual and or Service Manual should be referred to.

- **Perform work in accordance with the instructions herein stated.**
  Instructions for work are explained by paying attention to the aspect of accident prevention. Failing to perform work as per the instructions can cause accidents. In the case where only those who have technical expertise should perform the work to avoid hazardous situation, the instructions herein state that the serviceman should perform such work.

- **Be sure to turn off power before working on the machine.**
  To prevent electric shock, be sure to turn off power before starting the work in which the worker touches the interior of the product. If the work is to be performed in the power-on status, the Instruction Manual herein always states to that effect.

- **Be sure to ground the Earth Terminal** (this, however, is not required in the case where a power cord with earth is used).
  This product is equipped with the Earth Terminal. When installing the product, Connect the Earth Terminal to the “accurately grounded indoor earth terminal” by using an earth wire. Unless the product is grounded appropriately, the user can be subject to electric shock. After performing repair, etc. for the Control equipment, ensure that the Earth Wire is firmly connected to the Control equipment.

- **Ensure that the Power Supply used is equipped with an Earth Leakage Breaker.**
  This product does not incorporate the Earth Leakage Breaker. Using a power supply which is not equipped with the Earth Leakage Breaker can cause a fire when earth leakage occurs.

- **Be sure to use fuses which meet the specified rating.** (only for the machines which use fuses).
  Using fuses exceeding the specified rating can cause a fire and electric shock.

○ **Specification changes (removal of equipment, conversion and addition) not designated by SEGA are not allowed.**
The parts of the product include warning labels for safety, covers for personal protection, etc. It is very hazardous to operate the product by removing parts and or modifying the circuits. Should doors, lids and protective parts be damaged or lost, refrain from operating the product, and contact where the product was purchased from or the office herein stated. SEGA shall not be held responsible for any accidents, compensation for damage to a third party, resulting from the specifications not designated by SEGA.

○ **Ensure that the product meets the requirements of appropriate Electrical Specifications.**
Before installing the product, check for Electrical Specifications. SEGA products have a nameplate on which Electrical Specifications are described. Ensure that the product is compatible with the power supply voltage and frequency requirements of the location. Using any Electrical Specifications different from the designated Specifications can cause a fire and electric shock.

○ **Install and operate the product in places where appropriate lighting is available, allowing warning labels to be clearly read.**
To ensure safety for the customers, labels and printed instructions describing potentially hazardous situation are applied to places where accidents can be caused. Ensure that where the product is operated has sufficient lighting allowing the warnings to be read. If any label is peeled off, apply it again immediately. Please place an order with where the product was purchased from or the office herein stated.

○ **When handling the Monitor, be very careful. (Applies only to the product w/monitor.)**
Some of the monitor (TV) parts are subject to high tension voltage. Even after running off power, some portions are still subject to high tension voltage sometimes. Monitor repair and replacement should be performed only be those technical personnel who have knowledge of electricity and technical expertise.

○ **Be sure to adjust the monitor (projector) properly. (Applies only to the product w/monitor.)**
Do not operate the product leaving on-screen flickering or blurring as it is. Using the product with the monitor not properly adjusted may cause dizziness or a headache to an operator, a player, or the customers.

○ **When transporting or reselling this product, be sure to attach this manual to the product.**
In the case where commercially available monitors and printers are used in this product, only the contents relating to this product are explained herein. Some commercially available equipment has functions and reactions not stated in this manual. Read this manual together with the specific Instruction Manual of such equipment.

- Descriptions herein contained may be subject to improvement changes without notice.
- The contents described herein are fully prepared with due care. However, should any question arise or errors be found, please contact SEGA.

INSPECTIONS IMMEDIATELY AFTER TRANSPORTING THE PRODUCT TO THE LOCATION.

Normally, at the time of shipment, SEGA products are in a status allowing for usage immediately after transporting to the location. Nevertheless, an irregular situation may occur during transportation. Before turning on power, check the following points to ensure that the product has been transported in a satisfactory status.

☐ Are there any dented portions or defects (cuts, etc.) on the external surfaces of the cabinet?
☐ Are Casters and Adjusters, damaged?
☐ Do the power supply voltage and frequency requirements meet with those of the location?
☐ Are all wiring connectors correctly and securely connected? Unless connected in the correct direction, connector connections can not be made accurately. Do not insert connectors forcibly.
☐ Do power cords have cuts and dents?
☐ Do the fuses used meet specified rating? Is the Circuit Protector in an energized status?
☐ Are all accessories available?
☐ Can all Doors and Lids be opened with the Accessory keys? Can Doors and Lids be firmly closed?

TABLE OF CONTENTS

BEFORE USING THE PRODUCT, BE SURE TO READ THE FOLLOWING:
TABLE OF CONTENTS
INTRODUCTION OF THE OWNER'S MANUAL
1. HANDLING PRECAUTIONS 1
2. PRECAUTIONS CONCERNING INSTALLATION LOCATION ..... 2 - 3
3. OPERATION 4- 6
4. NAME OF PARTS 7
5. ACCESSORIES ..... 8 - 10
6. ASSEMBLING AND INSTALLATION ..... 11 - 20
7. PRECAUTIONS TO BE HEEDED WHEN MOVING THE MACHINE ..... 21 - 23
    7 - 1 PRECAUTIONS TO BE HEEDED WHEN MOVING THE MACHINE ..... 21 - 22
    7 - 2 REMOVING THE BILLBOARD ..... 22 - 23
8. CONTENTS OF GAME ..... 24 - 31
9. EXPLANATION OF TEST AND DATA DISPLAY ..... 32 - 41
    9 - 1 SWITCH UNIT AND COIN METER 33
    9 - 2 SYSTEM TEST MODE 34
    9 - 3 GAME TEST MODE ..... 35 - 41
10. CONTROL PANEL ..... 42 - 53
    10 - 1 OPENING THE CONTROL PANEL 43
    10 - 2 REPLACING THE VOLUME OF THE CONTROL STICK (an analog joystick) ..... 44 - 47
    10 - 3 REPLACING THE CONTROL STICK'S MICROSWITCH ..... 48 - 49
    10 - 4 ADJUSTING AND REPLACING THE VOLUME OF THE THRUST LEVER ..... 50 - 51
    10 - 5 GREASING 52
    10 - 6 REPLACING THE GUIDE PLATE OF THE CONTROL STICK 53
11. PEDAL UNIT ..... 54 - 55
    11 - 1 ADJUSTING THE VOLUME 54
    11 - 2 REPLACING THE VOLUME 55
    11 - 3 GREASING 55
12. COIN SELECTOR ..... 56 - 60
13. MONITOR ..... 61 - 65
    13 - 1 CAUTIONS AND WARNINGS CONCERNING THE SAFETY FOR HANDLING THE MONITORS ..... 61 - 63
    13 -2 CAUTIONS TO BE HEEDED WHEN CLEANING THE CRT SURFACES 63
    13 - 3 ADJUSTMENT METHOD ..... 64 - 65
14. REPLACING THE FLUORESCENT LAMP, AND LAMPS ..... 66 - 67
15. PERIODIC INSPECTION TABLE ..... 68 - 69
16. TROUBLESHOOTING ..... 70 - 72
17. GAME BOARD ..... 73 - 74
    17 - 1 REMOVING THE GAME BOARD 73
    17 - 2 COMPOSITION OF GAME BOARD 74
18. DESIGN RELATED PARTS 75
19. PARTS LIST ..... 76 - 118
20. WIRE COLOR CODE TABLE 119
21. WIRING DIAGRAM ..... 120 - 121

SPECIFICATIONS

Installation space	: 945 mm (W) X 1,625 mm (D) (37.2 in. X 64.0 in.)
Height	: 1,873 mm (73.7 in.) If the display card is installed, the height becomes 2,270 mm (89.4 in.).
Weight	: Approx. 252 kg. (555.6 lbs.)
Power, maximum current	: 215 W 2.5A (AC 110V 50 Hz AREA) 210 W 2.5A (AC 110V 60 Hz AREA) 215 W 2.3A (AC 120V 60 Hz AREA) 225 W 1.3A (AC 220V 50 Hz AREA) 210 W 1.3A (AC 220V 60 Hz AREA) 210 W 1.2A (AC 230V 50 Hz AREA) 205 W 1.2A (AC 230V 60 Hz AREA) 215 W 1.1A (AC 240V 50 Hz AREA) 210 W 1.1A (AC 240V 60 Hz AREA)
For TAIWAN	
Power, current	: 215 W 2.50A (MAX.) 170 W 1.95A (MIN.)
MONITOR	: 29 INCH COLOR MONITOR

INTRODUCTION OF THE OWNERS MANUAL

This Owner's Manual is intended to provide detailed descriptions together with all the necessary information covering the general operation of electronic assemblies, electromechanicals, servicing control, spare parts, etc. as regards the product, **STRIKE FIGHTER STD TYPE.**
This manual is intended for the owners, personnel and managers in charge of operation of the product. Operate the product after carefully reading and sufficiently understanding the instructions. If the product fails to function satisfactorily, non-technical personnel should under no circumstances touch the internal system. Please contact where the product was purchased from.

Use of this product is unlikely to cause physical injuries or damages to property. However, where special attention is required this is indicated by a thick line, the word "IMPORTANT" and its sign in this manual.

IMPORTANT

Indicates that mishandling the product by disregarding this display can cause the product's intrinsic performance not to be obtained, resulting in malfunctioning.

SEGA ENTERPRISES, INC. (U.S.A.)/CUSTOMER SERVICE
45133 Industrial Drive, Fremont, California 94538, U.S.A.
Phone : (415) 701-6580
Fax : (415) 701-6594

DEFINITION OF LOCATION MAINTENANCE MAN AND SERVICEMAN

Non-technical personnel who do not have technical knowledge and expertise should refrain from performing such work that this manual requires the location's maintenance man or a serviceman to carry out, or work which is not explained in this manual. Failing to comply with this instruction can cause a severe accident such as electric shock.

Ensure that parts replacement, servicing & inspections, and troubleshooting are performed by the location's maintenance man or the serviceman. It is instructed herein that particularly hazardous work should be performed by the serviceman who has technical expertise and knowledge.

The location's maintenance man and serviceman are herein defined as follows:

"Location's Maintenance Man" :
Those who have experience in the maintenance of amusement equipment and vending machines, etc., and also participate in the servicing and control of the equipment through such routine work as equipment assembly and installation, servicing and inspections, replacement of units and consumables, etc. within the Amusement Facilities and or locations under the management of the Owner and Owner's Operators of the product.

Activities of Location's Maintenance Man :
Assembly & installation, servicing & inspections, and replacement of units & consumables as regards amusement equipment, vending machines, etc.

Serviceman :
Those who participate in the designing, manufacturing, inspections and maintenance service of the equipment at an amusement equipment manufacturer.
Those who have technical expertise equivalent to that of technical high school graduates as regards electricity, electronics and or mechanical engineering, and daily take part in the servicing & control and repair of amusement equipment.

Serviceman's Activities :
Assembly & installation and repair & adjustments of electrical, electronic and mechanical parts of amusement equipment and vending machines.

LISTED

UL®

5K92

AMUSEMENT MACHINE

1. HANDLING PRECAUTIONS

When installing or inspecting the machine, be very careful of the following points and pay attention to ensure that the player can enjoy the game safely.
Non-compliance with the following points or inappropriate handling running counter to the cautionary matters herein stated can cause personal injury or damage to the machine.

WARNING!

- Before performing work, be sure to turn power off. Performing the work without turning power off can cause an electric shock or short circuit. In the case work should be performed in the status of power on, this manual always states to that effect.
- To avoid electric shock or short circuit, do not plug in or unplug quickly.
- To avoid electric shock, do not plug in or unplug with a wet hand.
- Do not expose Power Cords and Earth Wires on the surface, (floor, passage, etc.). If exposed, the Power Cords and Earth Wires are susceptible to damage. Damaged cords and wires can cause electric shock or short circuit.
- To avoid causing a fire or electric shock, do not put things on or damage Power Cords.
- When or after installing the product, do not unnecessarily pull the power cord. If damaged, the power cord can cause a fire or electric shock.
- In case the power cord is damaged, ask for replacement through where the product was purchased from or the office herein stated. Using the cord as is damaged can cause fire, electric shock or leakage.
- Be sure to perform grounding appropriately. Inappropriate grounding can cause an electric shock.
- Be sure to use fuses meeting specified rating. Using fuses exceeding the specified rating can cause a fire or electric shock.
- Completely make connector connections for IC BD and others. Insufficient insertion can cause an electric shock.
- Specification changes, removal of equipment, conversion and/or addition, not designated by SEGA are not permitted.
  - Failure to observe this may cause a fire or an electric shock. Non-compliance with this instruction can have a bad influence upon physical conditions of the players or the lookers-on, or result in injury during play.
  - SEGA shall not be held responsible for damage, compensation for damage to a third party, caused by specification changes not designated by SEGA.
- Be sure to perform periodic maintenance inspections herein stated.

IMPORTANT

- For the IC board circuit inspections, only the logic tester is allowed. The use of a multiple-purpose tester is not permitted, so be careful in this regard.
- When cleaning the CRT surfaces, use a soft, dry cloth. Do not apply chemicals such as thinner, benzine, etc.
- The electronic parts on the IC Board could be damaged due to human body's static electricity. Before performing IC Board related work, be sure to discharge physically accumulated statics by touching grounded metallic surfaces, etc.

2. PRECAUTIONS CONCERNING INSTALLATION LOCATION

This product is an indoor game machine. Do not install it outside. Even indoors, avoid installing in places mentioned below so as not to cause a fire, electric shock, injury and or malfunctioning.

- Places subject to rain or water leakage, or places subject to high humidity in the proximity of an indoor swimming pool and or shower, etc.
- Places subject to direct sunlight, or places subject to high temperatures in the proximity of heating units, etc.
- Places filled with inflammable gas or vicinity of highly inflammable/volatile chemicals or hazardous matter.
- Dusty places.
- Sloped surfaces.
- Places subject to any type of violent impact.
- Vicinity of anti-disaster facilities such as fire exits and fire extinguishers.
- The operating (ambient) temperature range is from 5 Celsius to 40 Celsius. Only in the case a projector is employed, the temperature range is from 5 Celsius to 30 Celsius.

LIMITATIONS OF USAGE REQUIREMENTS

- Be sure to check the Electrical Specifications.
  Ensure that this product is compatible with the location's power supply, voltage and frequency requirements.
  A plate describing Electrical Specifications is attached to the product.
  Non-compliance with the Electrical Specifications can cause a fire and electric shock.
- This product requires the Breaker and Earth Mechanisms as part of the location facilities. Using them in a manner not independent can cause a fire and electric shock.
- Ensure that the indoor wiring for the power supply is rated at 5A or higher (AC single phase 100 ~ 120V area), and 3A or higher (AC 220 ~ 240V area). Non-compliance with the Electrical Specifications can cause a fire and electric shock.
- Be sure to independently use the power supply equipped with the Earth Leakage Breaker. Using a power supply without the Earth Leakage Breaker can cause an outbreak of fire when earth leakage occurs.
- Putting many loads on one electrical outlet can cause generation of heat and a fire resulting from overload.
- When using an extension cord, ensure that the cord is rated at 5A or higher (AC 100 ~ 120V area) and 3A or higher (AC 220 ~ 240V area). Using a cord rated lower than the specified rating can cause a fire and electric shock.

OPERATION AREA

WARNING!

- For the operation of this machine, secure a minimum area of 1.8m (W) X 2.3m (D). In order to prevent injury resulting from the falling down accident during game play, be sure to secure the minimum area for operation.
- Be sure to provide sufficient space so as to allow this product's ventilation fan to function efficiently. To avoid machine malfunctioning and a fire, do not place any obstacles near the ventilation opening.
- SEGA shall not be held responsible for damage, compensation for damage to a third party, resulting from the failure to observe this instruction.

STOP

IMPORTANT

For transporting the machine into the location's building, the minimum necessary dimensions of the opening (of doors, etc.) are 1m(W) and 1.9m(H).
This product has been attached with the billboard before shipping from the factory. Detach the billboard if the entrance to the installation place is lower than the product's height. (See the section 7-2.)

Electric current consumption

MAX. 2.5 A (AC 110V 50 Hz)
MAX. 2.5 A (AC 110V 60 Hz)
MAX. 2.3 A (AC 120V 60 Hz)
MAX. 1.3 A (AC 220V 50 Hz)
MAX. 1.3 A (AC 220V 60 Hz)
MAX. 1.2 A (AC 230V 50 Hz)
MAX. 1.2 A (AC 230V 60 Hz)
MAX. 1.1 A (AC 240V 50 Hz)
MAX. 1.1 A (AC 240V 60 Hz)
MAX. 2.5 A (For TAIWAN)

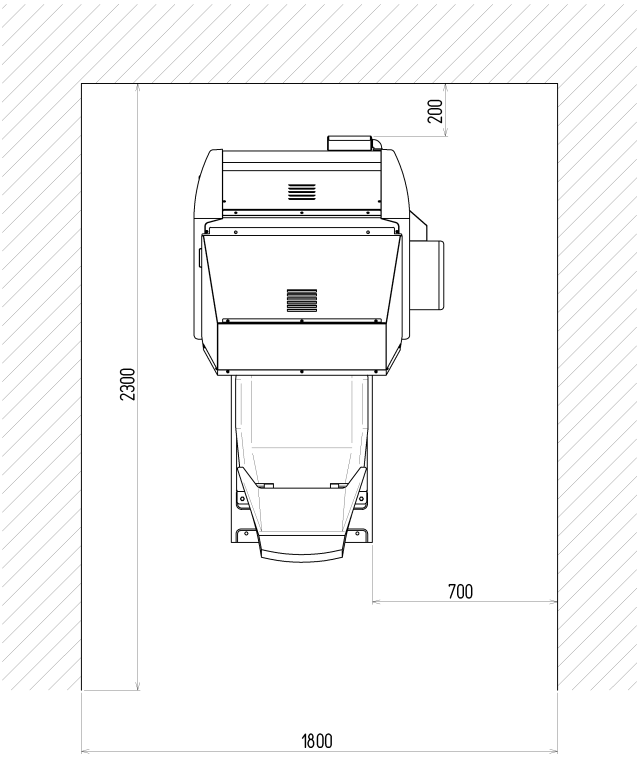


FIG. 2

3. OPERATION

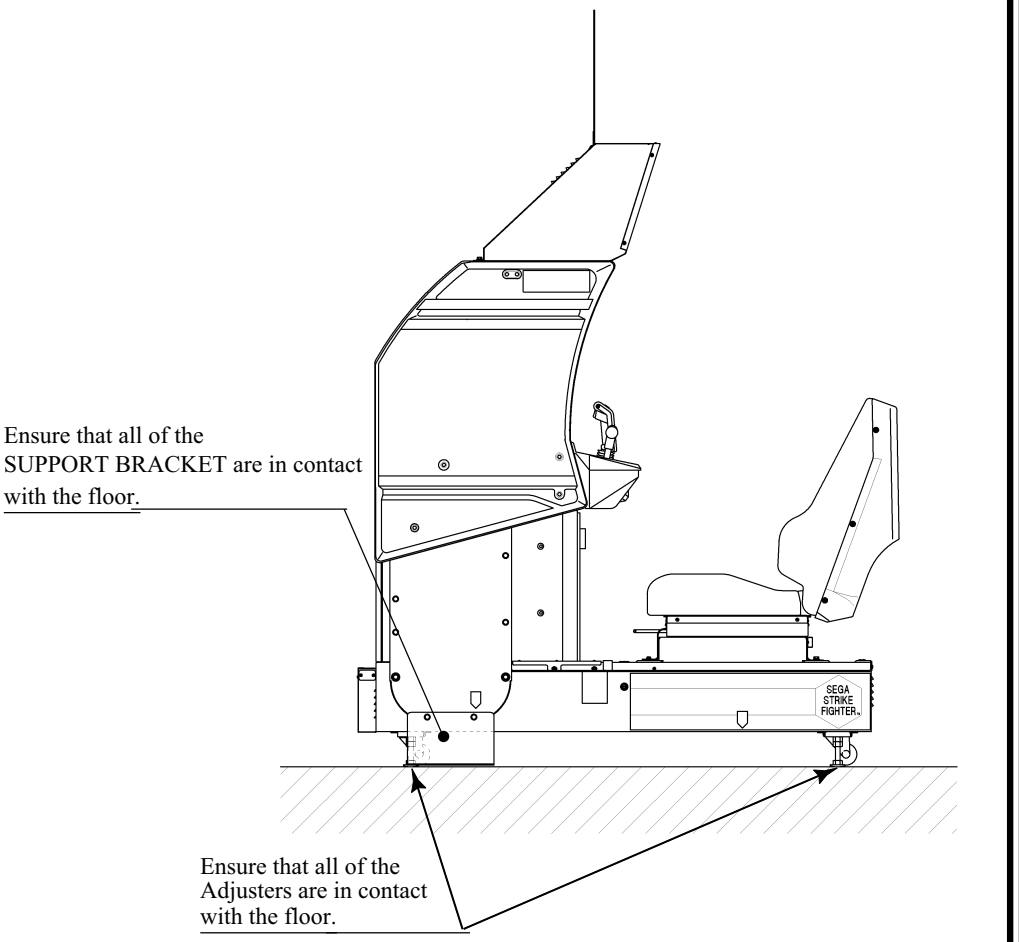
PRECAUTIONS TO BE HEEDED BEFORE STARTING THE OPERATION

To avoid injury and trouble, be sure to constantly give careful attention to the behavior and manner of the visitors and players.

WARNING!

In order to avoid accidents, check the following before starting the operation:

- To ensure maximum safety for the players and the customers, ensure that where the product is operated has sufficient lighting to allow any warnings to be read. Operation under insufficient lighting can cause bodily contact with each other, hitting accident, and or trouble between customers.
- Be sure to perform appropriate adjustment of the monitor (projector). For operation of this machine, do not leave monitor's flickering or deviation as is. Failure to observe this can have a bad influence upon the players' or the customers' physical conditions.
- It is suggested to ensure a space allowing the players who feel sick while playing the game to take a rest.
- Check if all of the adjusters are in contact with the surface. If they are not, the Cabinet can move and cause an accident.



- Do not put any heavy item on this product. Placing any heavy item on the product can cause a falling down accident or parts damage.
- Do not climb on the product. Climbing on the product can cause falling down accidents. To check the top portion of the product, use a step.
- To avoid electric shock, check to see if door & cover parts are damaged or omitted.
- To avoid electric shock, short circuit and or parts damage, do not put the following items on or in the periphery of the product.
  Flower vases, flowerpots, cups, water tanks, cosmetics, and receptacles/ containers/vessels containing chemicals and water.

To avoid injury, be sure to provide sufficient space by considering the potentially crowded situation at the installation location. Insufficient installation space can cause making bodily contact with each other, hitting accidents, and or trouble between customers.

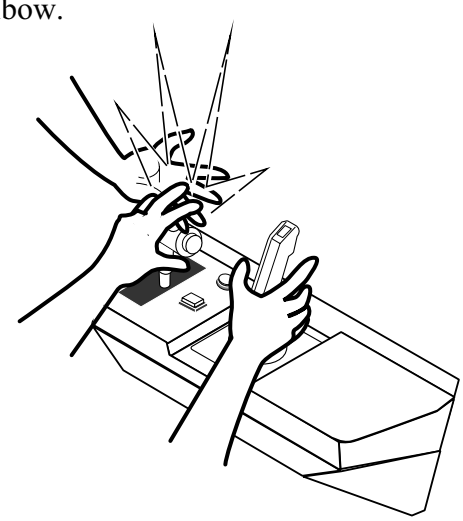
PRECAUTIONS TO BE HEEDED DURING OPERATION (PAYING ATTENTION TO CUSTOMERS)

To avoid injury and trouble, be sure to constantly give careful attention to the behavior and manner of the visitors and players.

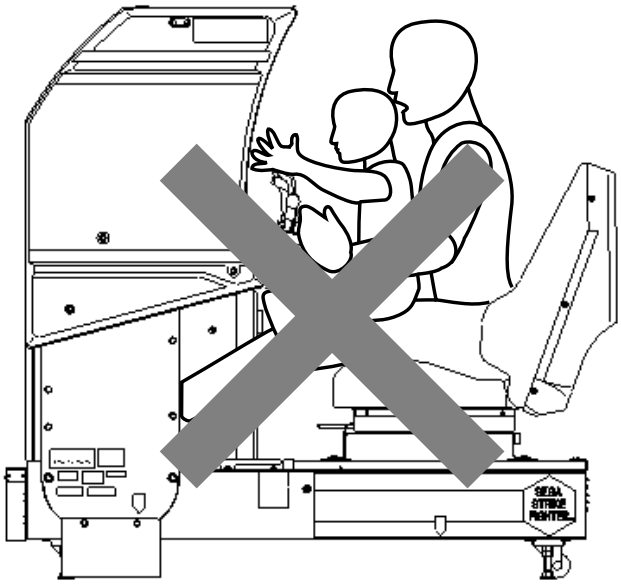
- To avoid injury and accidents, those who fall under the following categories are not allowed to play the game.
  - Those who need assistance such as the use of an apparatus when walking.
  - Those who have high blood pressure or a heart problem.
  - Those who have experienced muscle convulsion or loss of consciousness when playing video game, etc.
  - Those who have a trouble in the neck and or spinal cord.
  - Intoxicated persons.
  - Pregnant women or those who are in the likelihood of pregnancy.
  - Persons susceptible to motion sickness.
  - Persons whose act runs counter to the product's warning displays.
- A player who has never been adversely affected by light stimulus might experience dizziness or headache depending on his physical condition when playing the game. Especially, small children can be subject to those conditions. Caution guardians of small children to keep watch on their children during play.
- Instruct those who feel sick during play to have a medical examination.
- To avoid injury resulting from falling down and electric shock due to spilled drinks, instruct the player not to place heavy items or drinks on the product.
- To avoid electric shock and short circuit, do not allow customers to put hands and fingers or extraneous matter in the openings of the product or small openings in or around the doors.
- To avoid falling down and injury resulting from falling down, immediately stop the customer's leaning against or climbing on the product, etc.

WARNING!

- To avoid electric shock and short circuit, do not allow the customers to unplug the power plug without a justifiable reason.
- This product is intended for 1 Player only. Playing the game by 2 or more Players riding on the seat together can cause falling down and collision accidents by striking head, hand, or elbow.
- Caution lookers-on so as not to touch the operating unit while in play. Failure to observe this may cause bodily contact with the player and trouble between the customers.



- Caution the player so as not to hold a child in her/his lap to play. Failure to observe this may cause the child to be caught between the Control Panel and the player and fall down.



CAUTION!

- Immediately stop such violent acts as hitting and kicking the product. Such violent acts can cause parts damage or falling down, resulting in injury due to fragments and falling down.
- Instruct the Player to adjust the seat before playing the game. Playing the game in a forcible posture can cause a contingent accident.

4. NAME OF PARTS

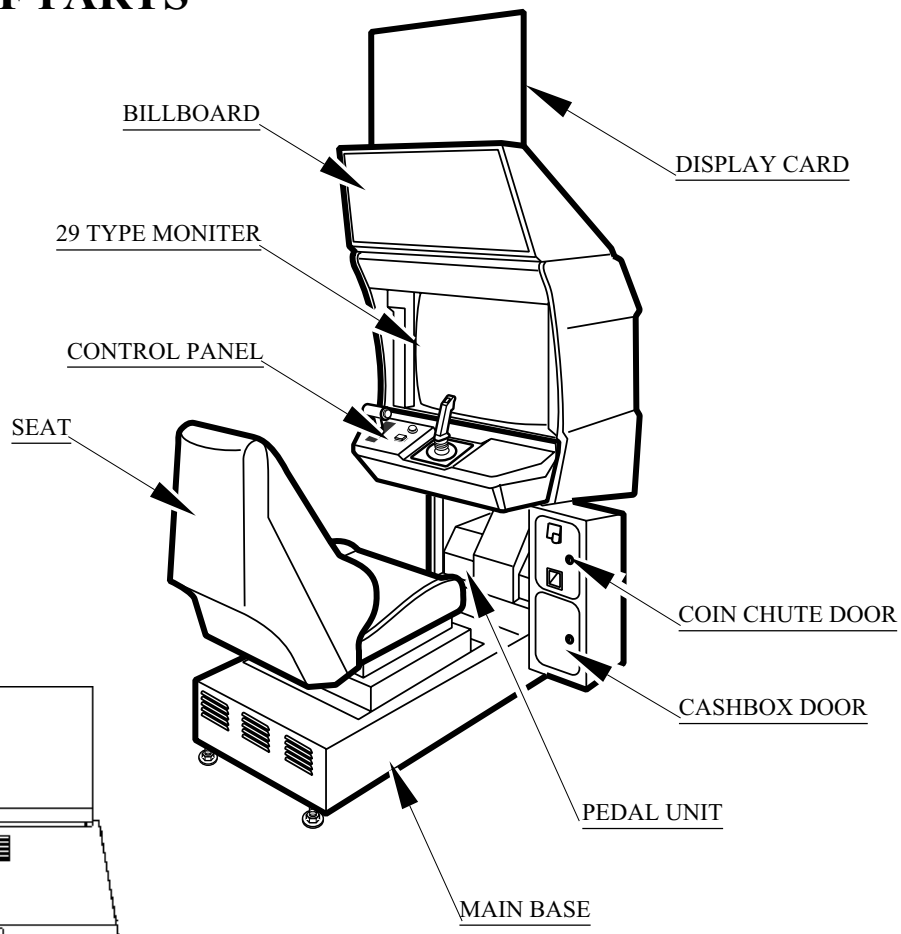


FIG. 4 a OVERVIEW

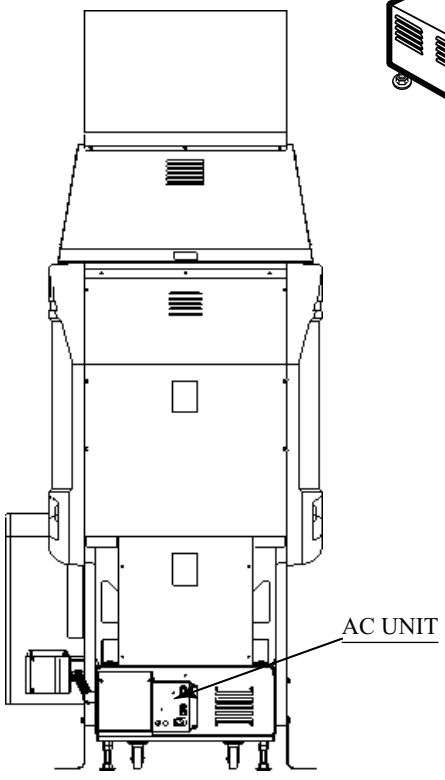


FIG. 4 b REAR VIEW

TABLE 4

	Width	X	Length	X	Height	Weight
CABINET	945 mm	X	1,625 mm	X	1,522 mm	239 kg
BILLBOARD	758 mm	X	560 mm	X	353 mm	13 kg
When assembled	945 mm	X	1,625 mm	X	1,873 mm	252 kg

The total height is 2,270 mm when the display card is mounted on the billboard.

5. ACCESSORIES

When transporting the machine, make sure that the following parts are supplied.

TABLE 5 ACCESSORIES

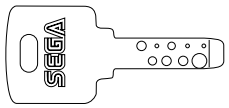
DESCRIPTION
Part No. (Qty.)
Note

Figures

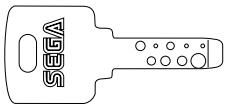
If Part No. has no description, the Number has not been registered or can not be registered. Such a part may not be obtainable even if the customer desires to purchase it. Therefore, ensure that the part is in safekeeping with you.

OWNERS MANUAL
420-6600-01 (1)

KEY MASTER
220-5576 (2)
For opening/closing the doors



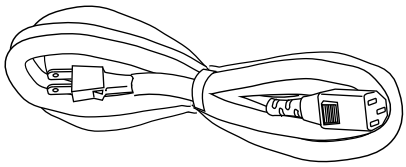
KEY
(2)
For the CASHBOX DOOR



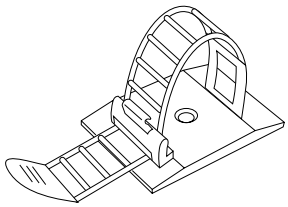
The Keys are inside the Coin Chute Door at the time of shipment from the factory.

SERVICE MANUAL NAOMI ENG
420-6455-01 (1)
INSTRUCTION MANUAL FOR THE GAME BOARD

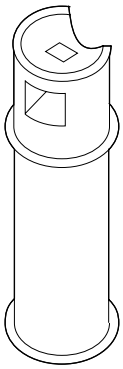
AC Cable (Power Cord)
600-6729 (1) TAIWAN
600-6618 (1) AC 220 ~ 240V AREA
600-6619-01 (1) HONG KONG
600-6695 (1) USA
Used for installation, see 3 of Section 6.



CORD CLAMP
280-5009-01 (1)
Used for securing the power cord.
see 3 of Section 6.

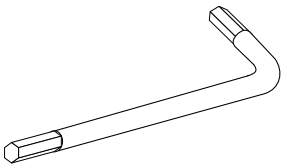


STATICIDE (300ML)
090-0074 (1)
Articles of consumption (see below).

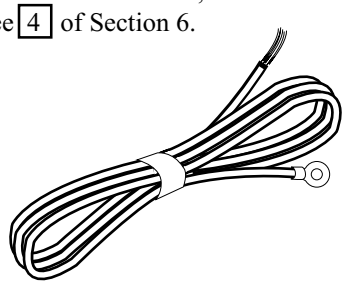


Periodically once every two months as standard, apply the "STATICIDE" (an antistatic spray agent) to the SEATs and wipe with a dry cloth.

TAMPERPROOF WRENCH
M4 540-0006-01 (1)
M5 540-0007-01 (1)
TOOL

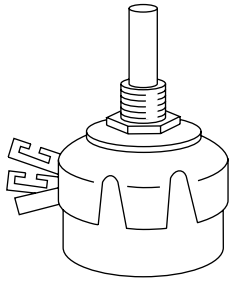


WIRE HARN EARTH W/LUG
M6
600-6664-02 (1)
For TAIWAN.
Used for installation, see 4 of Section 6.



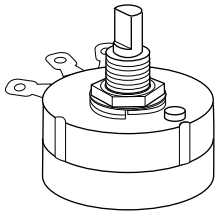
VOL CONT B-5K OHM
220-5373
220-5484 (1)

Spare, see Section 10, 11.



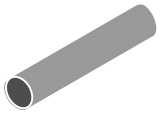
VOL CONT B-5K OHM
220-5737 (1)

Spare, see Section 10.



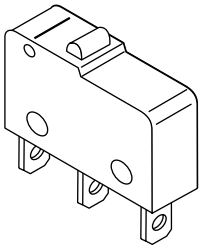
Heat-Shrinkable Tubing
310-5029-F20 (6)

Spare, refer to Section 10.



SW MICRO TYPE
509-5974 (1)

Spare, refer to Section 10.

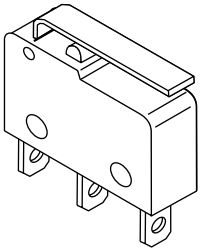


DISPLAY CARD
429-0697 (1)

Used for installation, see Section 6.

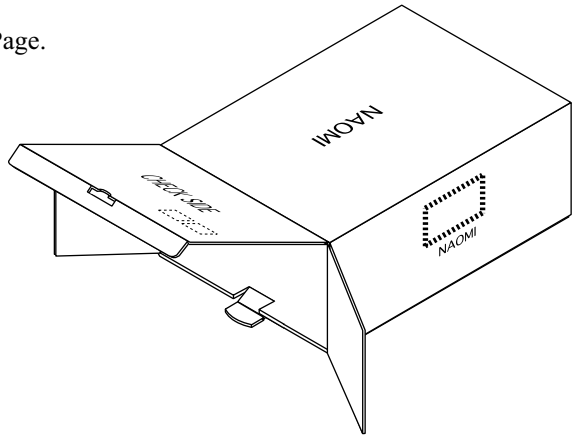
SW MICRO TYPE
509-5975 (1)

Spare, refer to Section 10.



CARTON BOX
601-10532 (1)

Used for transporting the
Game Board.
Refer to Next Page.



HOW TO USE THE CARTON BOX

IMPORTANT

When requesting for the replacement/repair of this product's Game Board (NAOMI BOARD), follow the instructions below. Transporting the Game Board in an undesignated status is unacceptable. An erroneous handling can cause parts damage.

- Put the Game Board in the Carton Box together with the Shield Case. Do not unnecessarily disassemble nor remove parts.
- By paying careful attention to the following Figure and the direction shown by on-Carton-Box printing, put the Shield Case in the Carton Box.
- When putting the Shield Case in the Carton Box, do not remove Leg Brackets.
- The projected portions of the packing material is intended for cushioning. Therefore, do not bend the projected portions.

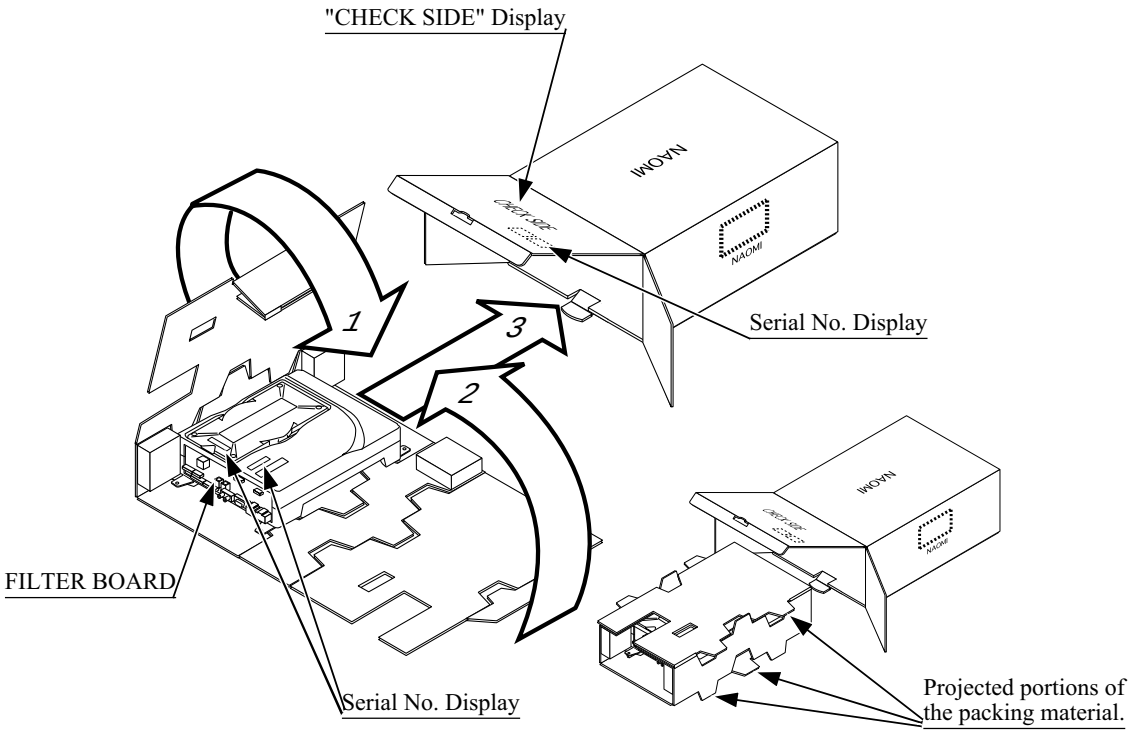


FIG. 5

Fold the packing material in the sequential order of the numbers shown in the Figure, enfold the Shield Case and put it in the Carton Box. Positioning the Shield Case upside down or packing in the manner different from what is shown in this Figure can cause the Game Board and other parts to be damaged.

6. ASSEMBLING AND INSTALLATION

WARNING!

- Perform assembly work by following the procedure herein stated. Failing to comply with the instructions can cause electric shock hazard.
- Perform assembling as per this manual. Since this is a complex machine, erroneous assembling can cause an electric shock, machine damage and or not functioning as per specified performance.
- When assembling, be sure to use plural persons. Depending on the assembly work, there are some cases in which working by one person alone can cause personal injury or parts damage.
- Ensure that connectors are accurately connected. Incomplete connections can cause electric shock hazard.
- Be careful so as not to damage wirings. Damaged wiring can cause electric shock and short circuit hazards.
- This work should be performed by the Location's Maintenance Man or Serviceman. Performing work by non-technical personnel can cause a severe accident such as electric shock. Failing to comply with this instruction can cause a severe accident such as electric shock to the player during operation.
- Provide sufficient space so that assembling can be performed. Performing work in places with narrow space or low ceiling may cause an accident and assembly work to be difficult.
- To perform work safely and avoid serious accident such as the cabinet's falling down, do not perform work in places where step-like grade differences, a ditch, or slope exist.

CAUTION!

- When handling plastic parts, use care. Do not give a shock or apply excessive load to the fluorescent lamps and plastic parts. Failure to observe this can cause parts damage, resulting in injury due to fragments, cracks and broken pieces.
- To perform work safely and securely, be sure to prepare a step which is in a secure and stable condition. Performing work without using the step can cause violent falling down accidents.

When carrying out the assembling and installation, follow the following 5-item sequence.

1 INSTALLING THE DISPLAY CARD

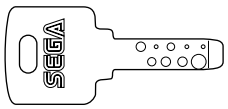
2 SECURING IN PLACE (ADJUSTER ADJUSTMENT)

3 POWER SUPPLY, AND EARTH CONNECTION

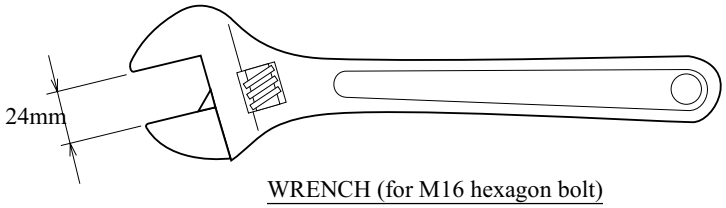
4 TURNING POWER ON

5 ASSEMBLING CHECK

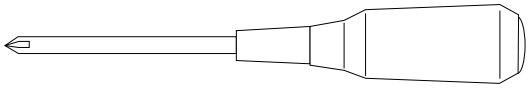
The master key (accessories) in addition to the tools such as a Phillips type screwdriver and wrench are required for the assembly work.



KEY MASTER



WRENCH (for M16 hexagon bolt)

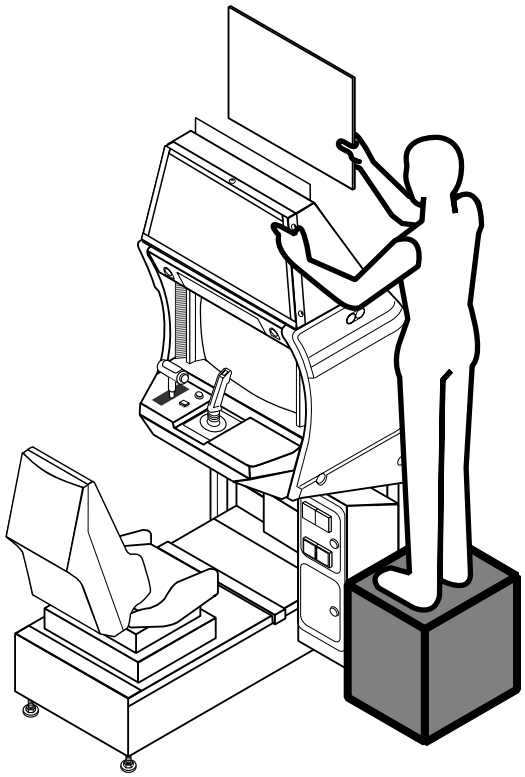


Phillips type screwdriver

1 INSTALLING THE DISPLAY CARD

Secure the DISPLAY CARD to the Billboard Box. Apply double-sided tape to the DISPLAY CARD and attach it to the POP Bracket. When the DISPLAY CARD is installed, the height is 2,270mm.

When the DISPLAY CARD is installed:	2,270 mm(H)
When the DISPLAY CARD is not installed:	1,873 mm(H)



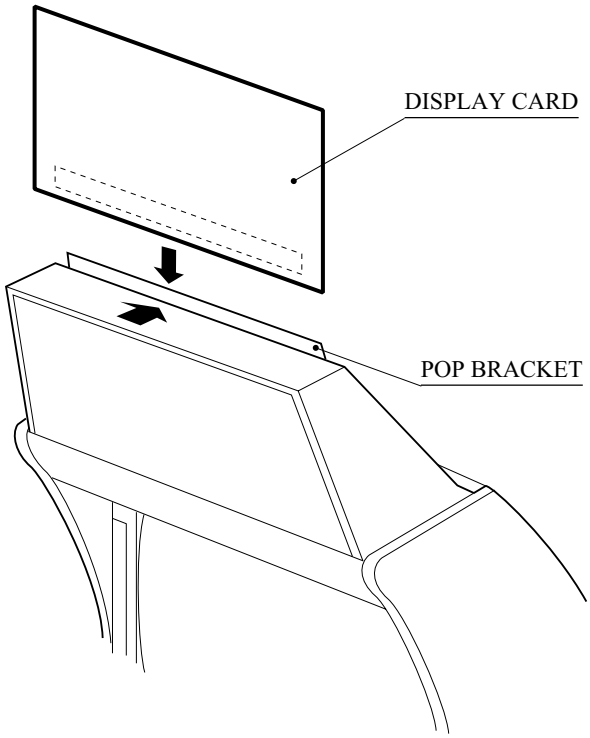


FIG. 6. 1

When performing work, be sure to use a step.

2 SECURING IN PLACE (ADJUSTER ADJUSTMENT)

WARNING!

> Make sure that all of the adjusters are in contact with the floor. If they are not, the cabinet can move and cause an accident.

This machine has 4 casters and 4 adjusters (Fig. 6.2a). When the installation position is determined, cause the adjusters to come into contact with the floor directly, make adjustments in a manner so that the casters will be raised approximately 5mm. from the floor and make sure that the machine position is level.

1. Move the machine to the installation position. When installing the machine against or close to a wall, be sure to secure a passage space to enable the player to take a ride in the machine.
2. Make adjuster adjustments with a wrench in a manner to ensure the machine's position is level.
3. After making adjustments, fasten the adjuster nut upward and secure the height of the adjuster.

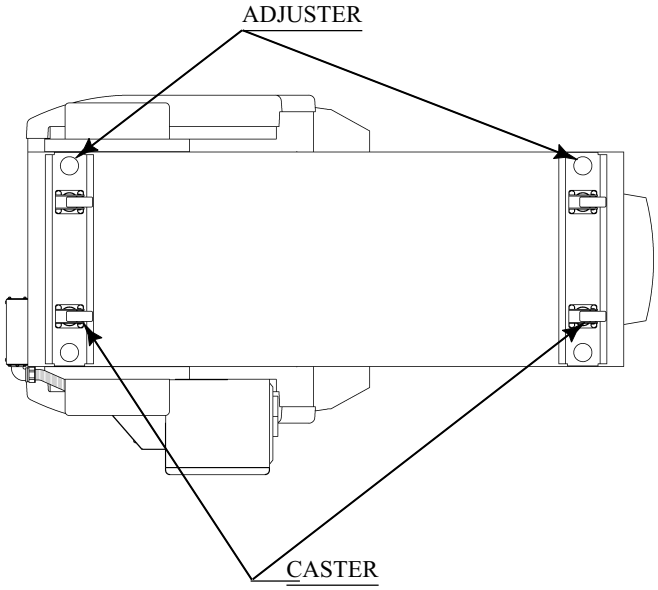


FIG. 6. 2 a BOTTOM VIEW

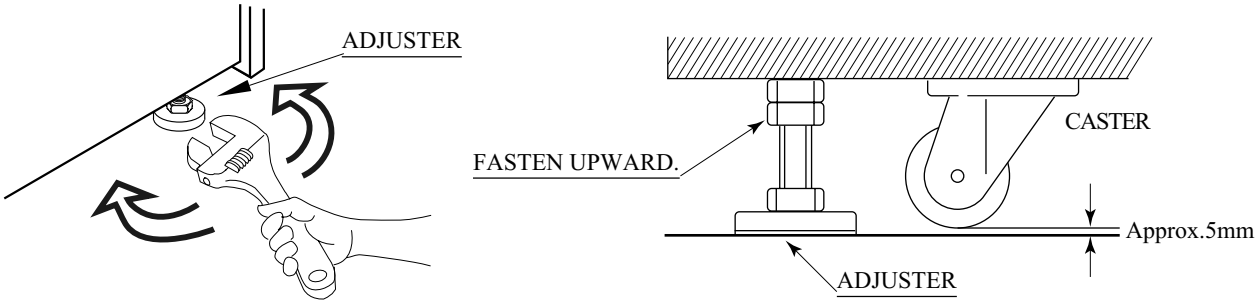


FIG. 6. 2 b ADJUSTER

④ Install SUPPORT BRACKET to the Cabinet left & right. Take out 2 Hexagon Bolts for each from the left & right of the Cabinet, and use them for securing the Support Brackets.

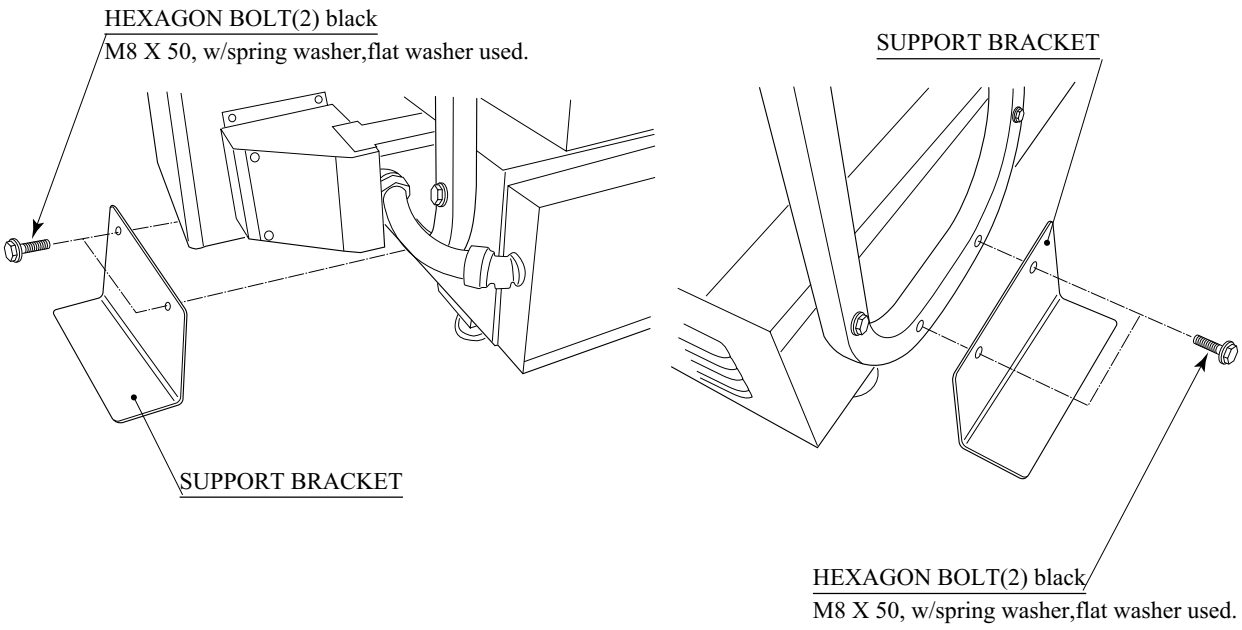

HEXAGON BOLT(2) black
M8 X 50, w/spring washer,flat washer used.
SUPPORT BRACKET
SUPPORT BRACKET
HEXAGON BOLT(2) black
M8 X 50, w/spring washer,flat washer used.

FIG. 6. 2 c

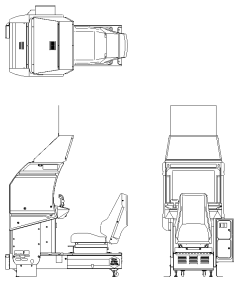


FIG. 6. 2 d

Refer to this Fig. (Scale:1/100) for the layout of the place of installation.

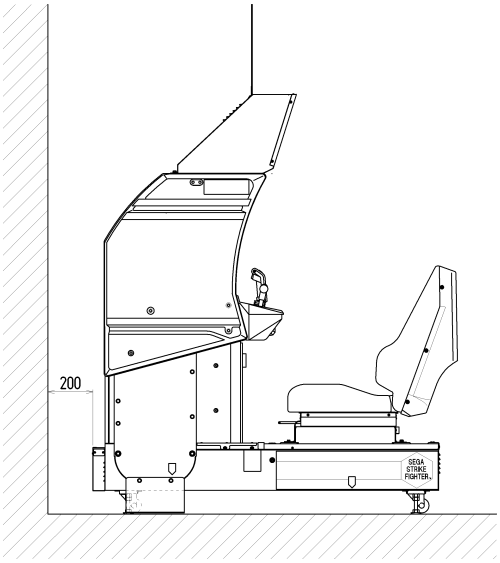


FIG. 6. 2 e

Be sure to provide space as shown between the Air Vent and the wall surface.
Provide 70cm or more wide space so as to allow customers to go through.

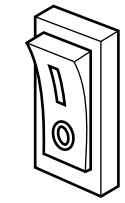
3 POWER SUPPLY, AND EARTH CONNECTION

WARNING!

- Be sure to independently use the power supply socket outlet equipped with an Earth Leakage Breaker. Using a power supply without an Earth Leakage Breaker can cause a fire when electric leakage occurs.
- Ensure that the "accurately grounded indoor earth terminal" and the earth wire cable are available (except in the case where a power cord plug with earth is used). This product is equipped with the earth terminal. Connect the earth terminal and the indoor earth terminal with the prepared cable. If the grounding work is not performed appropriately, customers can be subjected to an electric shock, and the product's functioning may not be stable.
- Ensure that the power cord and earth wire are not exposed on the surface (passage, etc.). If exposed, they can be caught and are susceptible to damage. If damaged, the cord and wire can cause electric shock and short circuit accidents. Ensure that the wiring position is not in the customer's passage way or the wiring has protective covering.
- After wiring power cord on the floor, be sure to protect the power cord. Exposed power cord is susceptible to damage and causes an electric shock accident.

The AC Unit is mounted on the back of the cabinet. The AC Unit has Main SW, Circuit Protector, Earth Terminal and the Inlet which connects the Power Cord.

① Ensure that the Main SW is OFF.



Main SW off

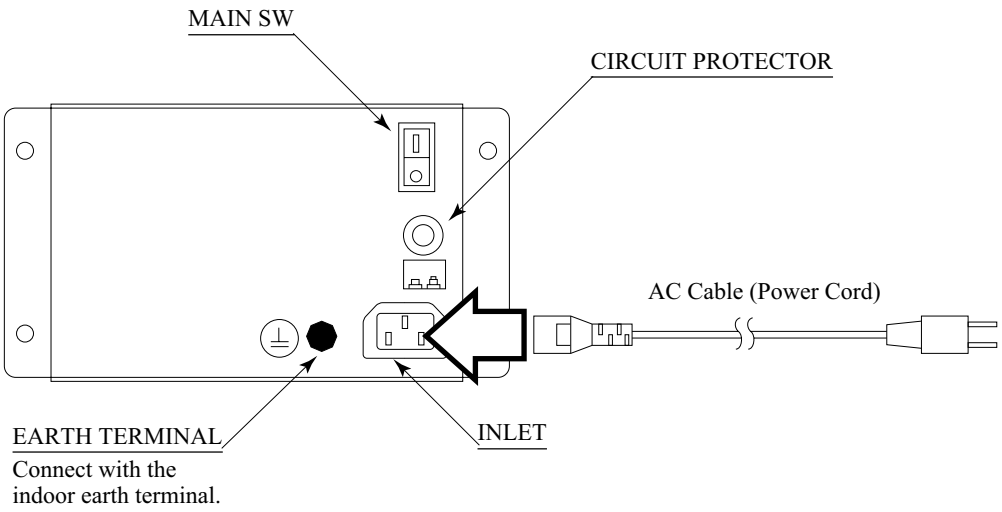


FIG. 6. 3 a AC unit

② Connect one end of the earth wire to the AC Unit earth terminal, and the other end to the indoor earth terminal. The AC Unit earth terminal has a Bolt and Nut combination. Take off the Nut, pass the earth wire through the Bolt, and fasten the Nut.
Note that the Earth Wire is incorporated in the Power Cord for the Areas of AC 120V (USA) and AC 220 ~ 240V, and therefore, this procedure is not necessary.

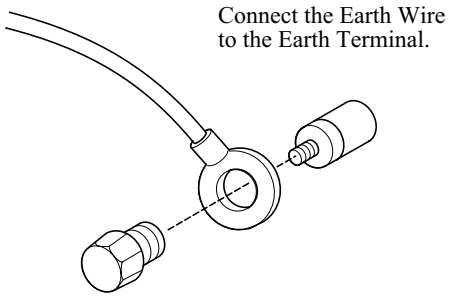


FIG. 6. 3 b Earth Wire Connection

③ Firmly insert the power plug into the socket outlet.
Insert the opposite side of Power Cord plug to the AC Unit's connector ("INLET").

④ Perform wiring for the Power Cord and Earth Wire. Install protective covering for the Power Cord and Earth Wire.

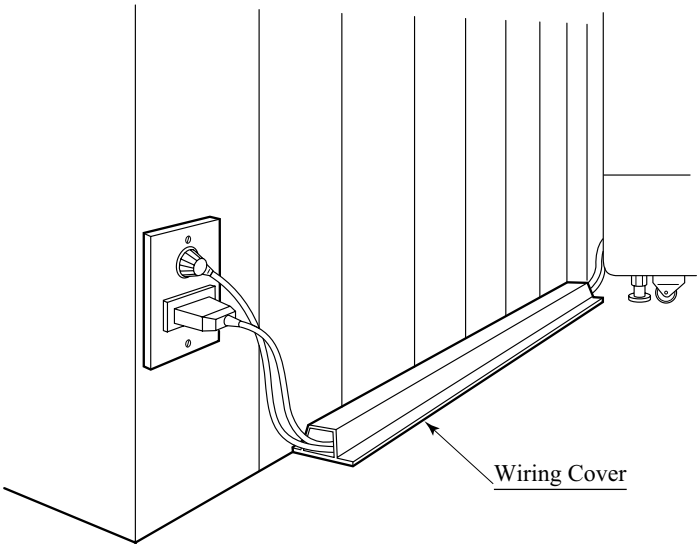
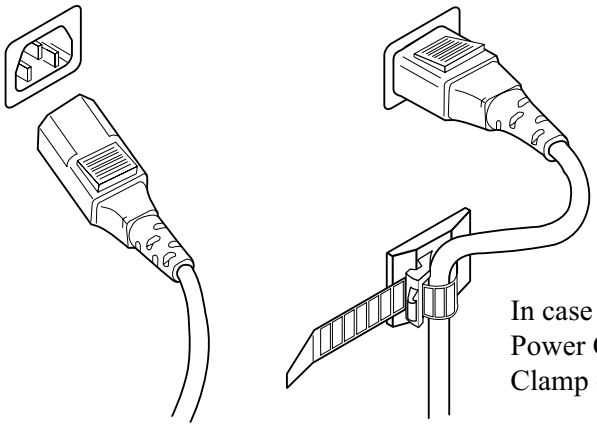


FIG. 6. 3 c Connecting Power Cord and Earth Wire



In case the Power Plug is apt to come out of place, secure the Power Cord to the periphery of the AC Unit with the Cord Clamp (an accessory).

HOW TO USE THE CORD CLAMP

4 TURNING POWER ON

Turn on the AC unit's main switch to connect the power. Then the monitor is connected with the power and the fluorescent lamp in the billboard is turned on. A few seconds later the screen displays a system power-on message and then an advertising (ply for hire) picture. At the same time some advertising sounds are heard from the speakers on the right and left of the monitor. The sounds are not heard if you have set this function to off (disabled).
The playing data, such as credit number, ranking, and latest-obtained scores, are stored in the memory even after disconnecting the power. The data of the fractional coins (the inserted coins under one credit) and the data in the bonus adder count are not stored.
Assume that you have disconnected the power with remaining the credit numbers enough to replay. When you reconnect the power, the screen immediately displays an advertising picture; now you can start to play the game by pressing the start button.

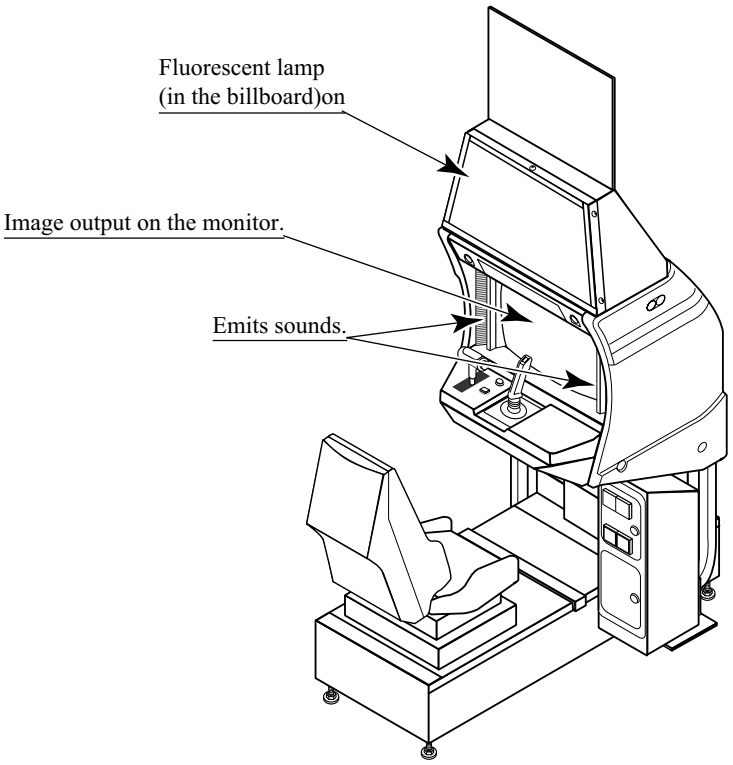


FIG. 6. 4

5 ASSEMBLING CHECK

In the TEST MODE, ensure that the assembly has been made correctly and IC BD. is satisfactory (refer to Section 9).
In the test mode, perform the following test:

(1) MEMORY TEST

Selecting the RAM TEST and ROM TEST on the SYSTEM TEST mode menu screen causes the on-board memory to be tested automatically. The game board is satisfactory if the display beside each IC No. shows GOOD.

```
RAM TEST


IC29 GOOD
IC35 GOOD
IC16 GOOD   IC18 GOOD
IC20 GOOD   IC22 GOOD
IC09 GOOD   IC10 GOOD
IC11 GOOD   IC12 GOOD

PRESS TEST BUTTON TO EXIT
```

```
ROM BOARD TEST
[XXXXXXXXXXXXXXXXX]

NO.  TYPE  RESULT BYTE WORD
IC22 32M   ----   XXXX XXXX
IC1  64M   GOOD   XXXX XXXX
IC2  64M   GOOD   XXXX XXXX
IC3  64M   GOOD   XXXX XXXX
IC4  64M   GOOD   XXXX XXXX
IC5  64M   GOOD   XXXX XXXX
IC6  64M   GOOD   XXXX XXXX
IC7  64M   GOOD   XXXX XXXX
IC8  64M   GOOD   XXXX XXXX
IC9  64M   GOOD   XXXX XXXX
IC10 64M   GOOD   XXXX XXXX
IC11 64M   GOOD   XXXX XXXX
•••• •••   ••••   •••• ••••
IC20 64M   GOOD   XXXX XXXX

PRESS TEST BUTTON TO EXIT
```

(2) SOUND TEST

```
SOUND TEST


RIGHT SPEAKER    OFF
LEFT SPEAKER     OFF
-> EXIT


SELECT WITH SERVICE BUTTON
AND PRESS TEST BUTTON
```

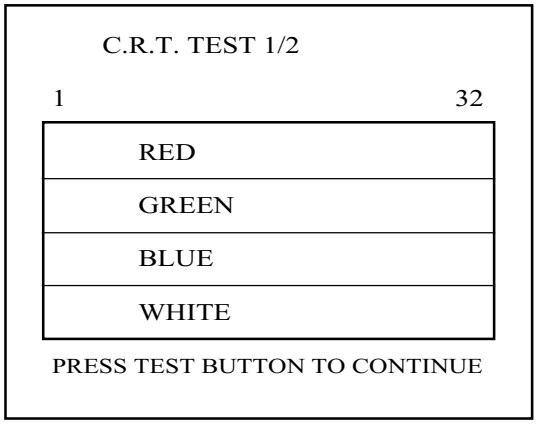
In the SYSTEM TEST mode, selecting SOUND TEST causes the screen (on which sound related BD and wiring connections are tested) to be displayed.
Check if the sound is satisfactorily emitted from each speaker and the sound volume is appropriate.

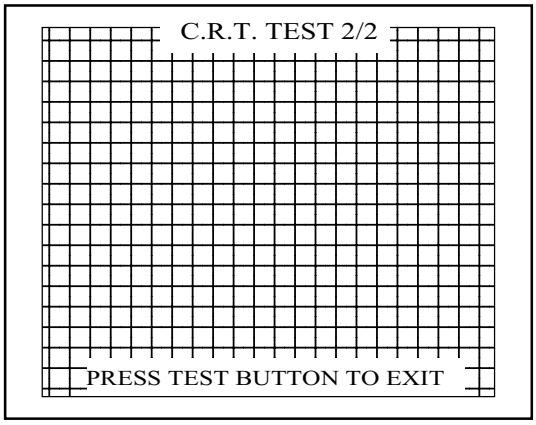
(3) C.R.T. TEST

In the SYSTEM TEST mode menu, selecting C.R.T. TEST allows the screen (on which the monitor is tested) to be displayed. Although the monitor adjustments have been made at the time of shipment from the factory, color deviation, etc., may occur due to the effect caused by geomagnetism, the location building's steel frames and other game machines in the periphery. By watching the test mode screen, make judgment as to whether an adjustment is needed. If it is necessary, adjust the monitor by referring to Section 13.
Use the DEMAG SW to remove color deviation due to magnetization.

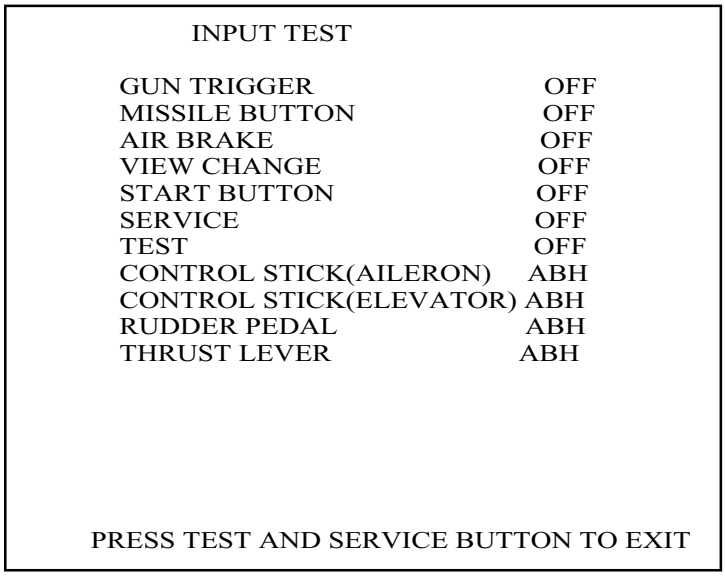
In the C.R.T. test of SYSTEM TEST mode, adjust color and screen size.

SYSTEM TEST mode



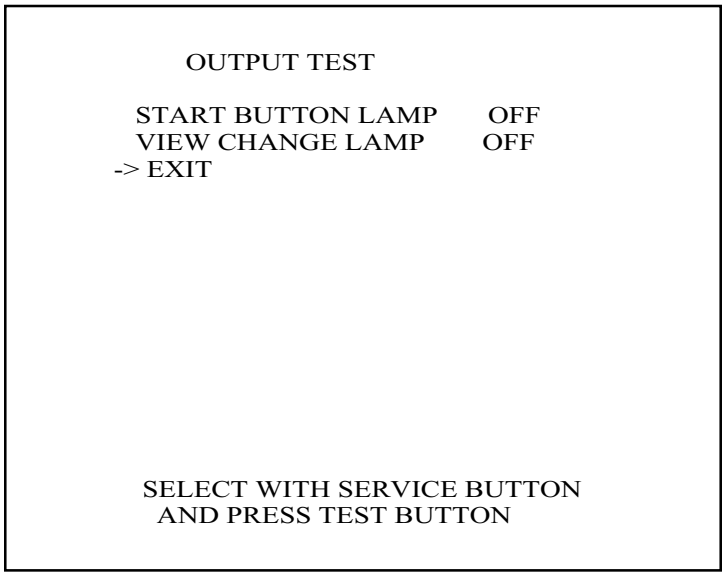


(4) INPUT TEST



Selecting the INPUT TEST on the GAME TEST mode menu screen causes the screen (on which each switch and V.R. are tested) to be displayed. Press each switch. If the display beside each switch indicates "ON," the switch and wiring connections are satisfactory.

(5) OUTPUT TEST



Select OUTPUT TEST from the menu in the GAME TEST mode to cause the screen (on which each lamp is tested) to appear. Ensure that each lamp lights up satisfactorily.

Perform the above inspections also at the time of monthly inspection.

7. PRECAUTIONS TO BE HEEDED WHEN MOVING THE MACHINE

7 - 1 PRECAUTIONS TO BE HEEDED WHEN MOVING THE MACHINE

WARNING!

- When moving the machine, be sure to unplug the power plug. Moving the machine with the plug as is inserted can damage the power cord, and cause fire and electric shock hazards.
- When moving the machine on the floor, retract the Adjusters and ensure that Casters make contact with the floor. During transportation, pay careful attention so that Casters do not tread power cords and earth wires. Damaging the power cords can cause electric shock and short circuit hazards.
- When moving the machine, do not push the cabinet from the left/right direction. Pushing the cabinet from the left/right direction can cause the cabinet to fall down, resulting in injury and or parts damage.

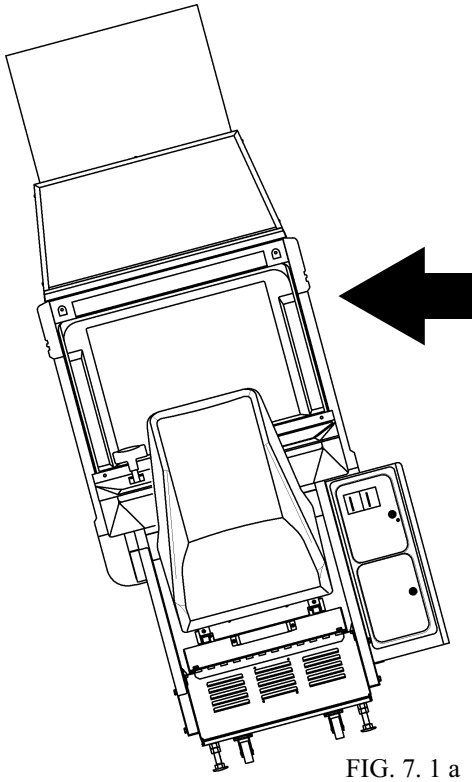
CAUTION!

Do not push glass parts (CRT, etc.) or plastic parts. Failure to observe this may damage parts and cause injury due to an accident or fragments resulting from damage.

STOP

IMPORTANT

When transporting the product in places with steps, disassemble into each unit before transporting. Inclining the product in an as is assembled condition or placing the cabinet in places with steps can damage the unit's joining portions.



Do not push the cabinet from the left/right direction.

FIG. 7. 1 a

In a place where the ceiling is low, remove the Billboard before moving the machine.

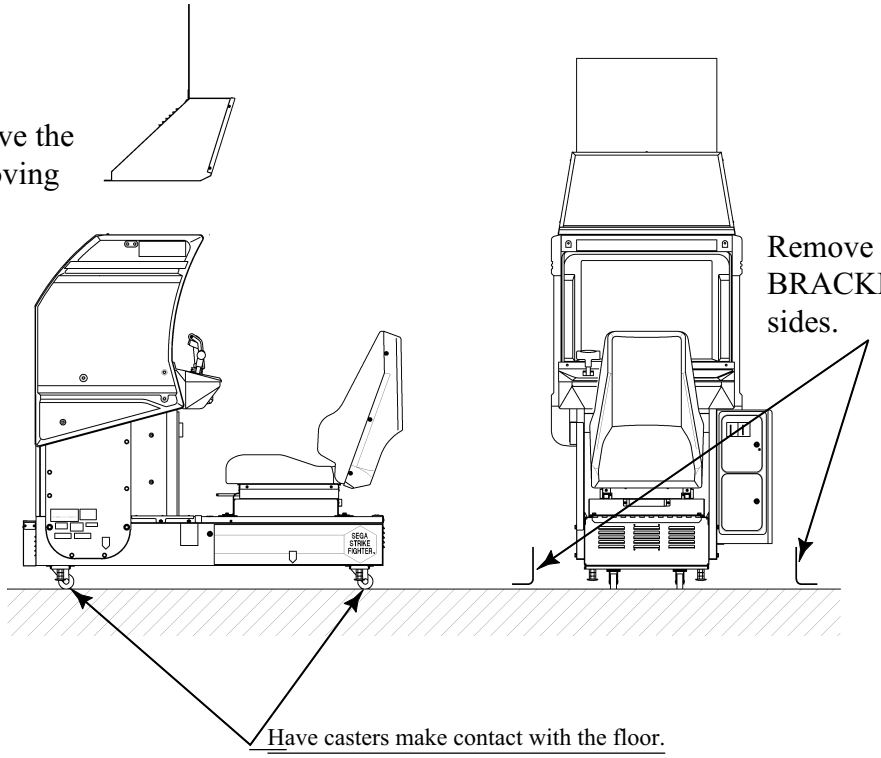


FIG. 7. 1 b

7 - 2 REMOVING THE BILLBOARD

WARNING!

- Before starting to work, ensure that the Power SW is OFF. Failure to observe this can cause electric shock and short circuit hazards.
- Use care so as not to damage wirings. Damaged wiring can cause electric shock and short circuit hazards.
- Ensure that connectors are accurately connected. Incomplete connections can cause electric shock hazard.
- When performing work, be sure to use plural workers. Performing work by one person alone can cause accidents and parts damage.

CAUTION!

Do not push the plastic made parts. Failure to observe this may damage parts and cause injury due to fragments resulting from damage.

STOP

IMPORTANT

When handling the DISPLAY CARD, use care as it is susceptible to damage.

When moving the machine, if the door's height is low, remove the BILLBOARD.

① Turn off power.

② Take out 5 Truss Screws to remove the Sash from the Billboard.

③ Remove the Billboard Plate from the Billboard Box.

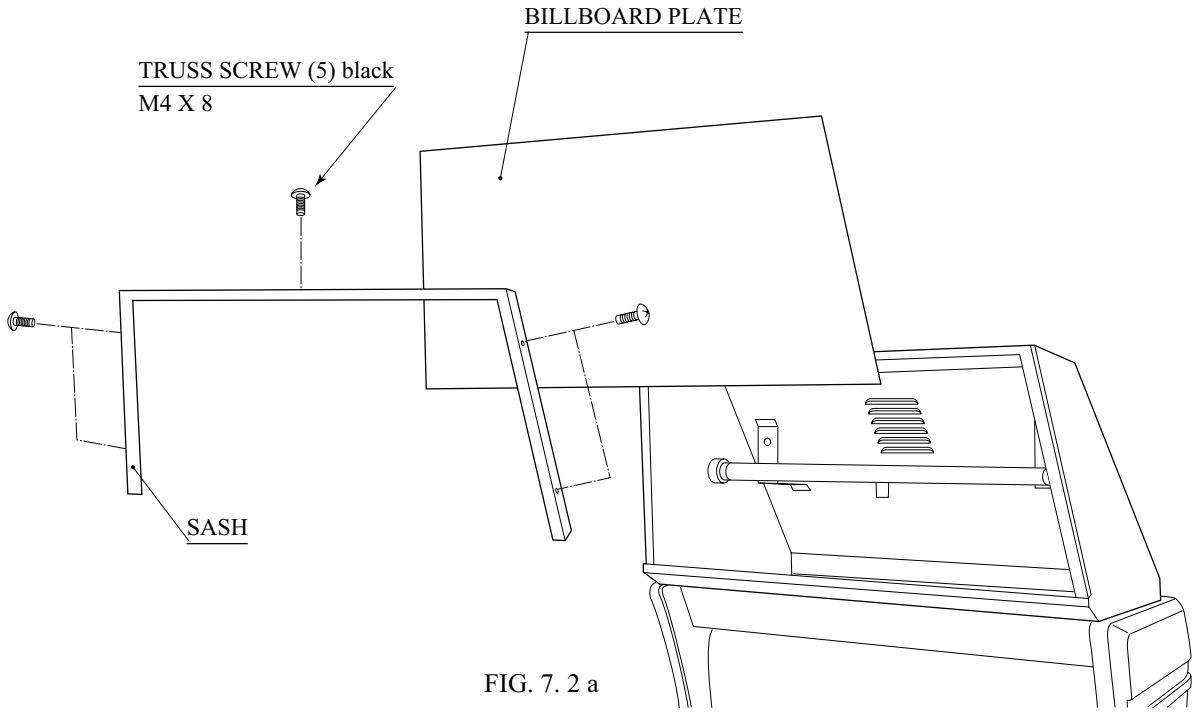


FIG. 7. 2 a

④ Disconnect one connector inside the Billboard Box.

⑤ Take out 2 Hexagon Bolts for each from the inside and the rear of the Billboard Box.

⑥ Remove the Billboard Box from the Cabinet while supporting the Billboard Box by 2 or more persons.

Be sure to perform work by 2 persons.

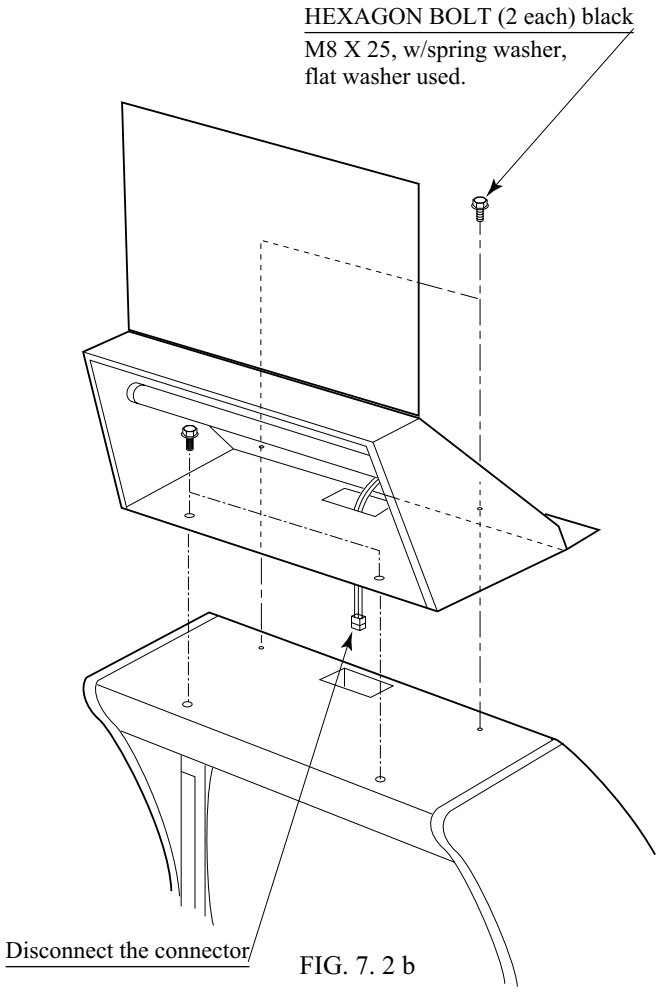


FIG. 7. 2 b

8. CONTENTS OF GAME

The following explanations apply to the case the product is functioning satisfactorily. Should there be any moves different from the following contents, some sort of faults may have occurred. Immediately look into the cause of the fault and eliminate the cause thereof to ensure satisfactory operation.

When the power is connected, the fluorescent lamp in the billboard is always on. When in an advertising state, the screen displays the demonstration pictures and ranking data. Sounds are heard from the speakers on the right and left of the monitor. The advertising sounds are not heard if you have set this function to off (disabled).
The start button and the view change button on the control panel are integrated with a lamp. The start button (lamp) flashes when the coins are inserted enough to play the game.

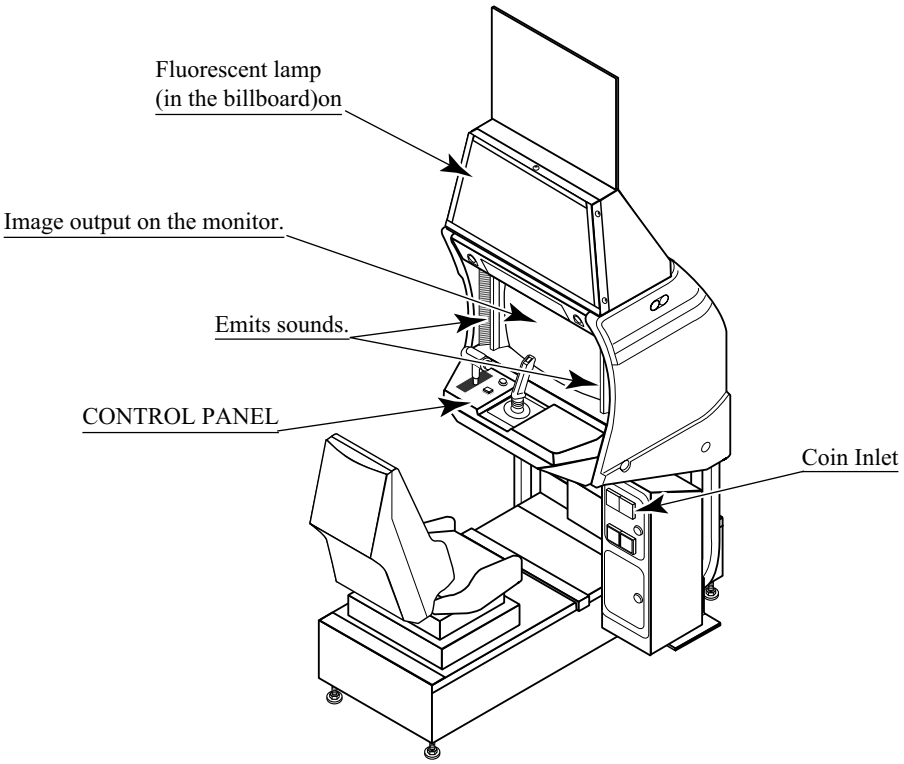


FIG. 8

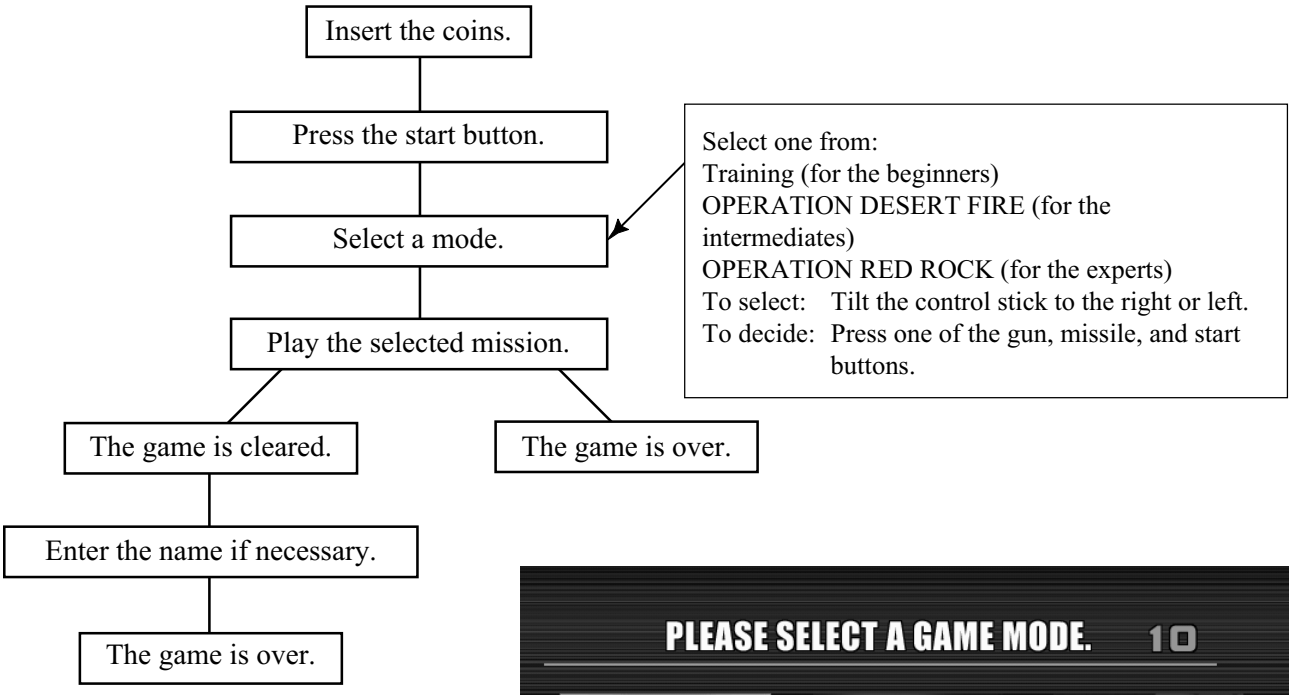
Introduction

This game is a flight-simulation game that assumes the F/A-18 Hornet, a main fighter-attacker of the U.S. Navy and the U.S. Marine Corps. Freely flying over the field, a player can attack the ground targets and combat in the air. He/she may also experience in-flight refueling, landing on an aircraft carrier, and other non-combating missions; thus he/she can enjoy every operation of the fighter-attacker

Two playing modes are available with this game: a training mission mode for the beginners and a fighting mission mode for the intermediates and experts. Usually in a training mission mode, a player (as a trainee) can play all the training missions and his/her skills are evaluated at the end of the game. In a fighting mission mode, each mission has its own clearing conditions; a player cannot advance to a next mission without satisfying the present mission's clearing conditions.

Game Flow

Game flow is as follows:


Insert the coins.
Press the start button.
Select a mode.
Play the selected mission.
The game is cleared.
The game is over.
Enter the name if necessary.
The game is over.
Select one from:
Training (for the beginners)
OPERATION DESERT FIRE (for the intermediates)
OPERATION RED ROCK (for the experts)
To select: Tilt the control stick to the right or left.
To decide: Press one of the gun, missile, and start buttons.

PLEASE SELECT A GAME MODE.
10
TRAINING (BEGINNER)
OPERATION DESERT FIRE (INTERMEDIATE)
OPERATION RED ROCK (EXPERT)
TRAINING
You can learn basic fighter plane piloting.
Recommended for players not use to playing airplane games.
Select with the control stick.
Press start button to decide.

GAME MODE select screen

How to Play Each Mission

● Training

- The following 7 training tasks are given one after another.
- Even if you cannot achieve a task, the game is not finished but you can advance to a next task after a while.
- Your score is displayed at the end of the game.
- You can play all the tasks regardless of you skills, but your score depends on your skills.
- The tasks are in series; there are no branches on a playing flowchart.

[Basic Training Tasks]

- Climbing
- Turning
- Firing a missile
- Firing a gun

[Advanced Training Tasks]

- Fighting
- Attacking with a missile
- Attacking with a gun

● OPERATION DESERT FIRE

- The game assumes a real fighting.
- First, the situation is explained and then the clearing conditions are given.
- The clearing conditions vary mission by mission. Basically, however, you can clear a mission by destroying the specified number of the TG-marked targets.
- After clearing a mission, you are allowed to advance to a next mission.
- The game is over when:

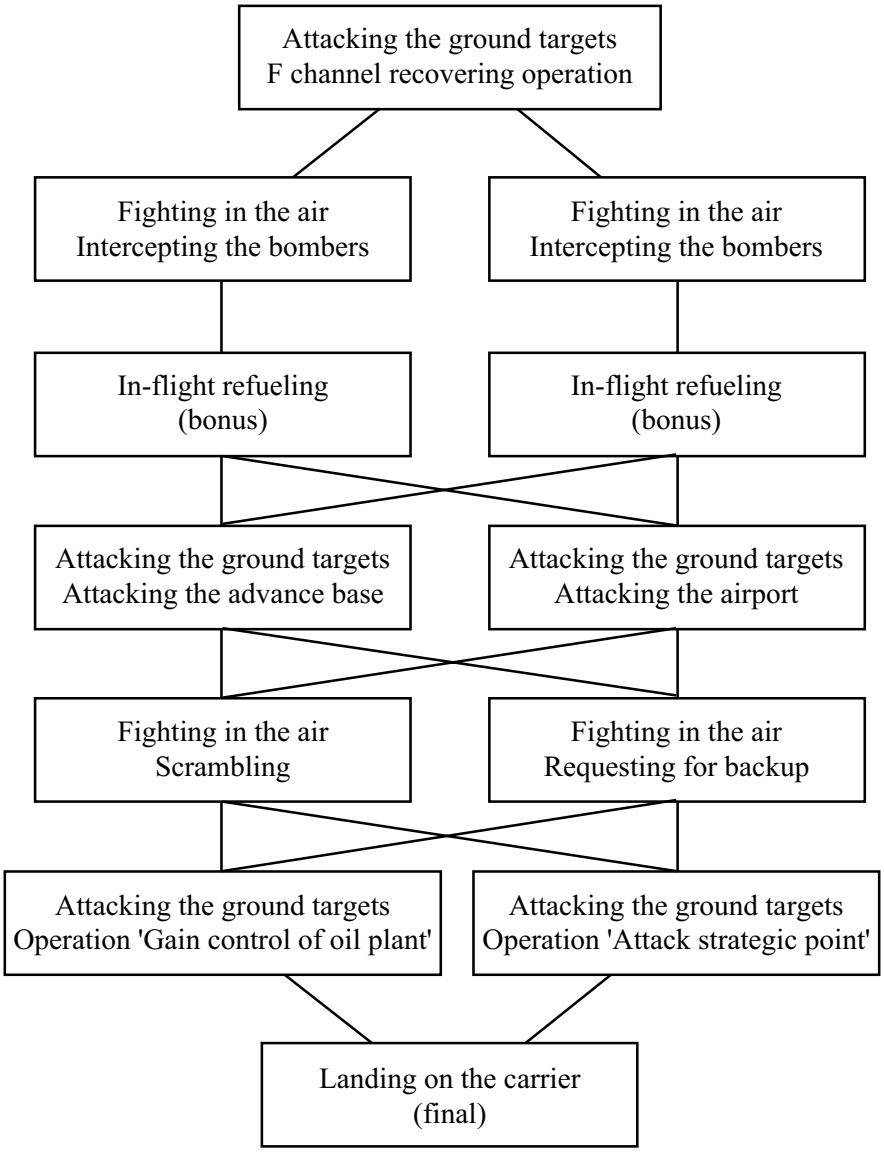
  - the limit of a playing time is reached,

  - your fighter-attacker's body is damaged thoroughly and crashed,

  - your fighter-attacker is out of the field, or

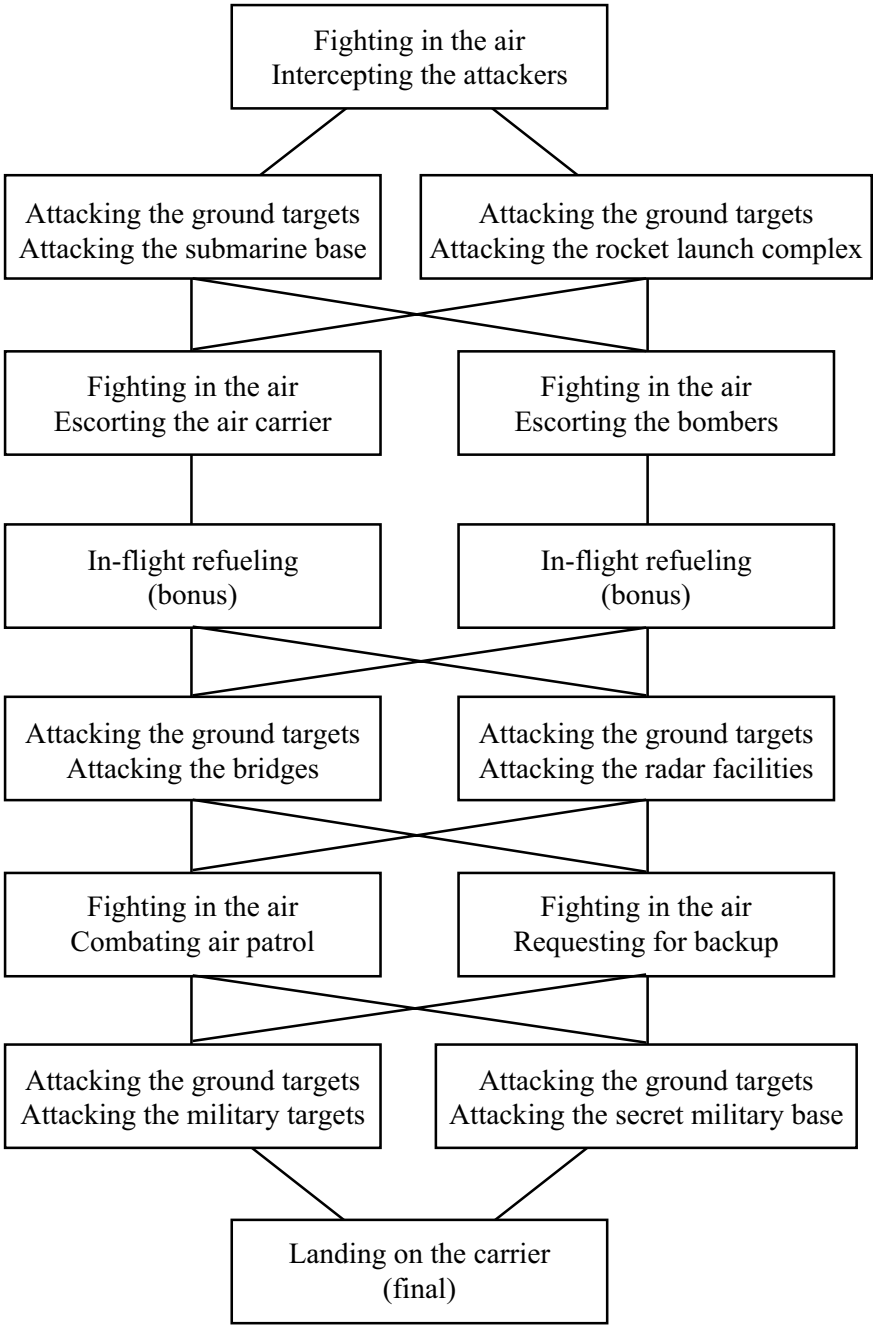
  - you have no usable weapons anymore.
- After the game is over, you can continue to play the game. The continued game starts at the stage that you left when the game was over. The continued mission is given a slightly longer limit of a playing time.
- An in-flight refueling is a bonus mission. If you succeed in the refueling mission, you may be given bonus scores and/or recover the damages depending on the refueling time you spent. Even if you fail in the refueling mission, the game is not over.
- A landing on the carrier is also a bonus mission. If you succeed in the landing mission, you may be given bonus scores. Even if you fail in the landing mission, the game is not over; instead you can move to a screen that displays the final results.

- The OPERATION DESERT FIRE covers the following missions:

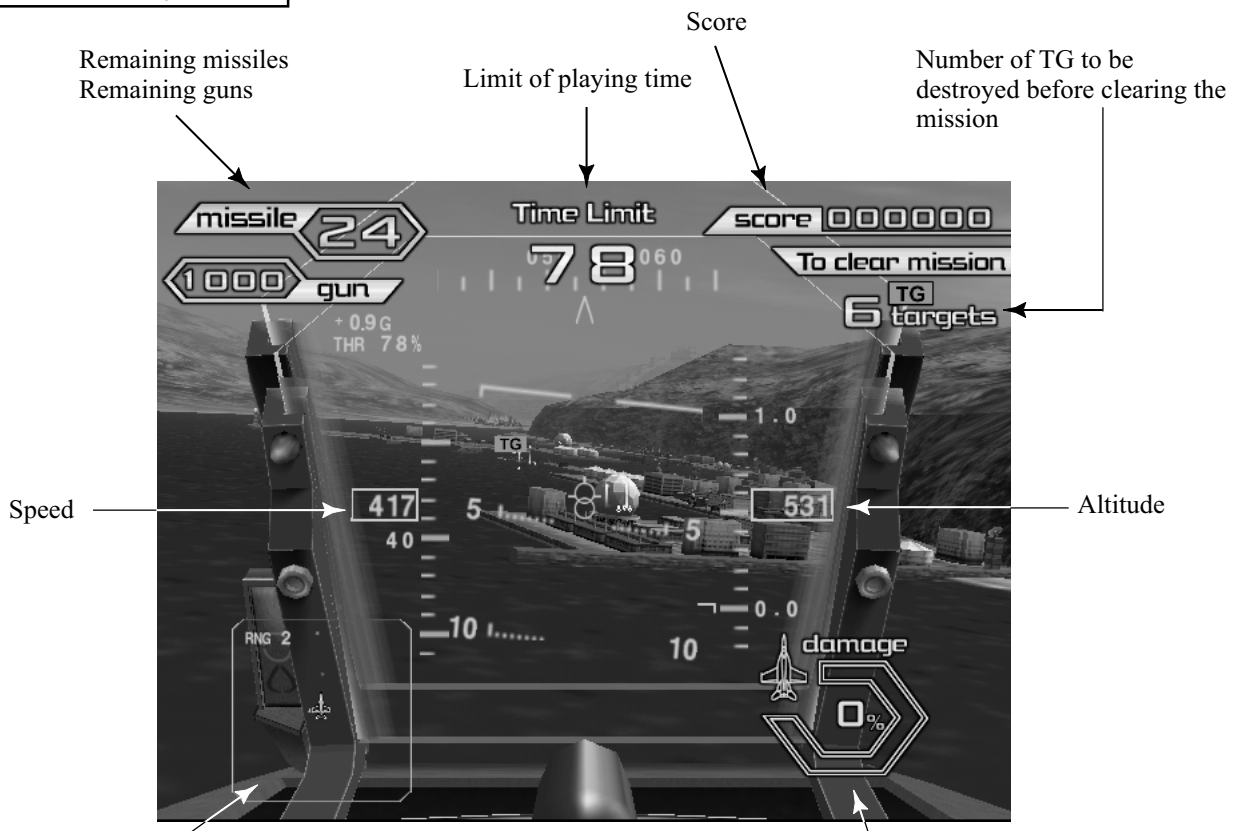


● OPERATION RED ROCK

- Basically, the above descriptions in the OPERATION DESERT FIRE are applicable to this OPERATION RED ROCK.
- The OPERATION DESERT FIRE covers the following missions:



Game Screen Layout

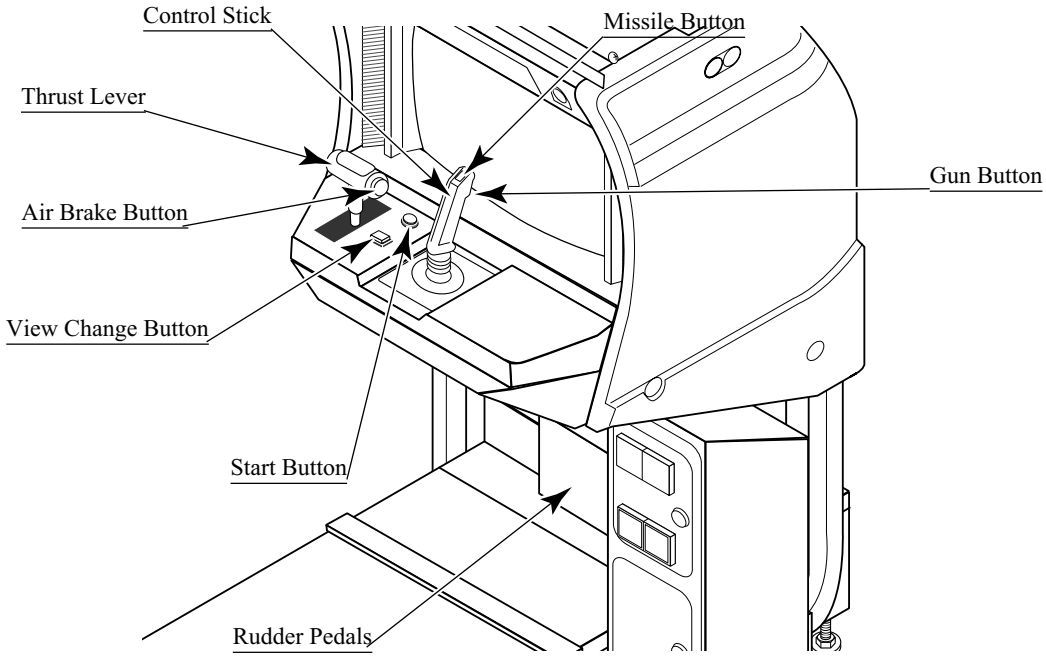


Radar

Orange :	TG-marked enemies
Violet :	Other enemies
Light blue :	Friends
Yellow :	Missile

Operation Controls

The following operating and inputting controls are equipped.



- Control Stick:
  Upper and lower positions enable to climb the body respectively up and down. Left and right positions enable to control the body's rolling. The control stick is also used to select the mission.

- Air Brake Button:
  This button brakes the body hard when pressed.

- Thrust Lever:
  This lever accelerates and decelerates the body when pushed and pulled respectively.

- Gun Button:
  This button fires the gun when pressed.

- Missile Button:
  This button fires the missile when pressed, only if the target is in a lock-on. If not, the button cannot work.

- View Change Button:
  This button toggles three views: a view with the headup display, a forward view from the cockpit, and a backward view.
  The integrated lamp flashes when this function is available.

- Start Button:
  This button starts the game when pressed after inserting the coins. Once the game is started, this button skips an explanation picture etc. on the screen.
  NOTE: When skipping a game-explanation picture, you can use not only the start button but also the other buttons. When skipping an operation-explanation picture, however, you can use only the start button.
  When you insert the coins (credits) while a game-continuing picture appears on the screen, the start button's integrated lamp flashes. If you press the start button at this moment, you can continue to play the game. If you press the other buttons, the time counts faster. If you do not press any buttons, an advertising picture appears on the screen; now, the start button starts the game from the first without continuing.

- Rudder Pedals:
  The right rudder pedal turns the nose to the right while the left one to the left.

Scores

- For the training:
  The shorter the time (seconds) to complete a training task, the higher the score.

- For the OPERATION DESERT FIRE and the OPERATION RED ROCK:
  Target scores are obtained when you destroy the targets while bonus scores when you clear the mission.

- The shorter the time to destroy a target, the higher the score. The more the destroyed targets, the higher the score.

- If you continue to play a mission, the target scores are cleared to 0 (zero).

- For the OPERATION DESERT FIRE and the OPERATION RED ROCK:
  You are raked at the end of the game, depending on the number of continuation, as follows:

Ranks	Number of Continuation
Colonel	0
Lieutenant Colonel	1
Major	2
Captain	3
First Lieutenant	4
Second Lieutenant	5 or more

- Ranking (score)

9. EXPLANATION OF TEST AND DATA DISPLAY

By operating the switch unit, periodically perform the tests and data check. When installing the machine initially or collecting cash, or when the machine does not function correctly, perform checking in accordance with the explanations given in this section.
The following shows tests and modes that should be utilized as applicable.
NAOMI GAME BOARD is used for the product. The system of this game board allows another game to be played by replacing the ROM Board Case mounted on the NAOMI CASE. As such, the Test Mode of this system consists of the System Test Mode for the system to execute SELF-TEST, COIN ASSIGNMENTS, etc. used in common for the machines employing the NAOMI BOARD, and the Game Test Mode for the specific product to execute Input/Output test for the operation equipment, difficulty setting, etc. In this manual, explanations regarding the System Test Mode cover the settings for this product only. For the details of the System Test Mode, refer to NAOMI SERVICE MANUAL, an accessory.

TABLE 9 EXPLANATION OF TEST MODE

ITEMS	DESCRIPTION	REFERENCE SECTIONS
INSTALLATION OF MACHINE	When the machine is installed, perform the following: 1. Check to ensure each is the standard setting at shipment. 2. Check each Input equipment in the INPUT TEST mode. 3. Check each Output equipment in the OUTPUT TEST mode. 4. Test on-IC-Board IC's in the SELF-TEST mode.	SERVICE MANUAL SERVICE MANUAL, 9-3D 9-3B 9-3C SERVICE MANUAL
MEMORY	This test is automatically executed by selecting RAM TEST, or ROM BOARD TEST in the Menu mode.	SERVICE MANUAL
PERIODIC SERVICING	Periodically perform the following: 1. MEMORY TEST 2. Ascertain each setting. 3. To test each Input equipment in the INPUT TEST mode. 4. To test each Output equipment in the OUTPUT TEST mode.	 SERVICE MANUAL SERVICE MANUAL, 9-3D 9-3B SERVICE MANUAL, 9-3C
CONTROL SYSTEM	1. To check each Input equipment in the INPUT TEST mode. 2. Adjust or replace each Input equipment. 3. If the problem still remains unsolved, check each equipment's mechanism movements.	SERVICE MANUAL, 9-3B 9-3B, E 10, 11
MONITOR	In the Monitor Adjustment mode, check to see if Monitor (Projector) adjustments are appropriate.	SERVICE MANUAL 13
IC BOARD	MEMORY TEST	SERVICE MANUAL
DATA CHECK	Check such data as game play time and histogram to adjust the difficulty level, etc.	SERVICE MANUAL 9-3F

WARNING!

Never touch places other than those specified. Touching places not specified can cause electric shock and short circuit hazards.

STOP

IMPORTANT

- Adjust to the optimum sound volume by considering the environmental requirements of the installation location.
- If the COIN METER and the game board are electrically disconnected, game play is not possible.

SWITCH UNIT

Open the coin chute door, and the switch unit shown will appear. The function of each SW is as follows:

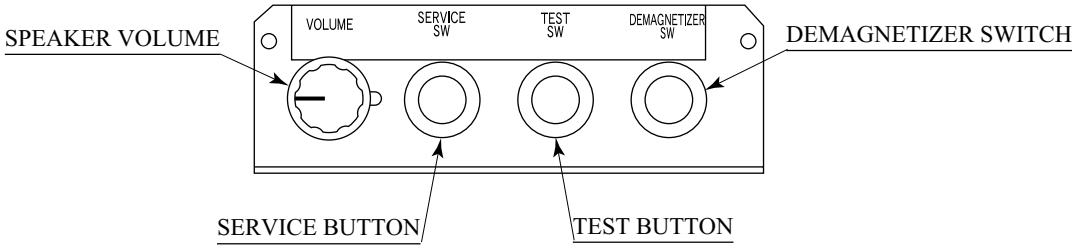


FIG. 9. 1 a SWITCH UNIT

SPEAKER VOLUME: Sound volume can be adjusted for the 2 Speakers.
VOLUME

SERVICE BUTTON: Gives credits without registering on the coin meter.
SERVICE SW

TEST BUTTON: For the handling of the TEST BUTTON, refer to the following pages.
TEST SW

DEMAGNETIZER SWITCH: Eliminates the on-screen color unevenness due to magnetization of CRT.
DEMAGNETIZER SW First use this SW before performing the monitor's color adjustment.

COIN METER

Open the Cashbox Door by using the key to have the Coin Meter appear underneath the Cashbox.

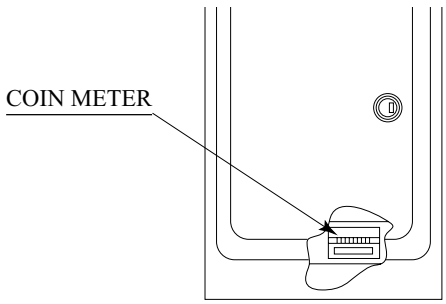


FIG. 9. 1 b COIN METER

STOP

IMPORTANT

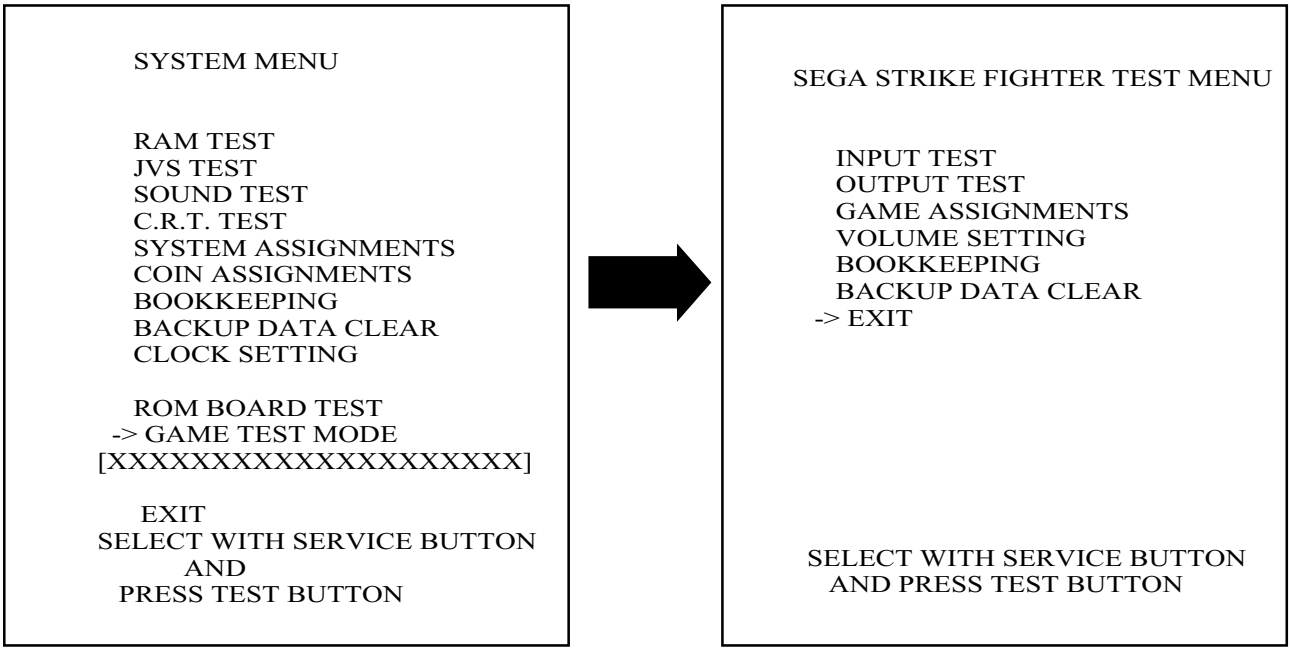
- The contents of settings changed in the TEST mode are stored when the test mode is finished from EXIT in the menu mode. If the power is turned off before the TEST mode is finished, the contents of setting change become ineffective.
- Executing "BACKUP DATA CLEAR" in the SYSTEM TEST MODE does not clear the BOOKKEEPING data in the GAME TEST mode.
- Entering the TEST mode clears fractional number of coins less than one credit and BONUS ADDER data.

The SYSTEM TEST mode mainly allows for IC Board functioning check, monitor adjustment, coin assignments, etc. For details, refer to NAOMI SERVICE MANUAL. The following assignments, however, should be as designated specifically for this product.

- CABINET TYPE: 1 PLAYER (S)
- MONITOR TYPE: HORIZONTAL
- COIN CHUTE TYPE: COMMON
- SERVICE TYPE: COMMON

9 - 3 GAME TEST MODE

A. MENU MODE



SYSTEM TEST MODE MENU GAME TEST MODE MENU

FIG. 9. 3 a MENU MODE

- Connect the power and press the start button. After performing a power-on test of the game board, the system displays the SYSTEM MENU screen.
- By pressing the SERVICE button, move the arrow (->) to select the GAME TEST MODE.
- Press the TEST button to enter GAME TEST MODE. The screen displays the GAME TEST MODE MENU.
- By pressing the SERVICE button, move the arrow (->) to select the desired item . Press the TEST button to execute the selected item.
- Select EXIT and press the TEST button to exit from the GAME TEST MODE and return to the SYSTEM TEST MODE MENU. Further, select EXIT and press the TEST button to finish SYSTEM TEST MODE and return to the normal mode.

B. INPUT TEST

Selecting INPUT TEST displays the following and allows the status of each switch to be checked and the Volume value of each operative unit to be observed. In this mode, periodically check the status of each switch and Volume.

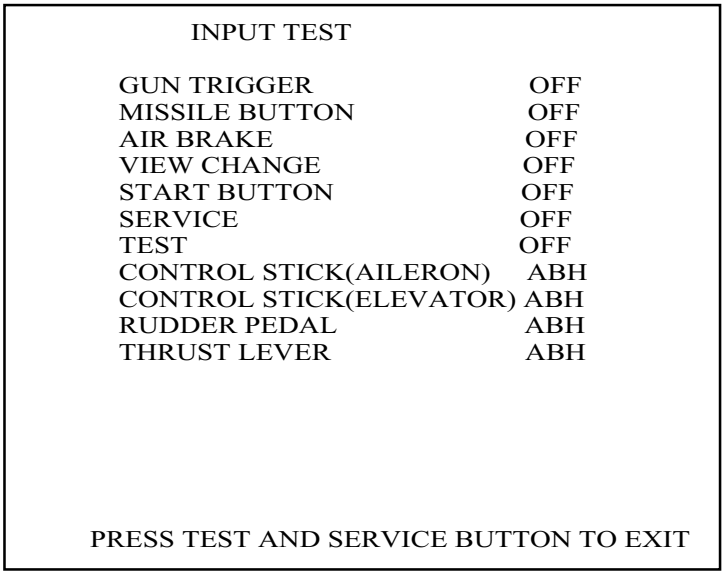


FIG. 9. 3 b INPUT TEST

- By pressing each switch, if the display on the right-hand side of the name of each switch changes to ON from OFF, the SW and the wiring connections are satisfactory.

- Operate CONTROL WHEEL, THRUST LEVER, etc. to check Volume value display variation. If the variation is not satisfactorily consistent with operation, refer to Sections 10 and 11.

Operation of each control changes its volume value as follows:

Volume Value	Becoming smaller	Becoming larger
Control Stick (aileron)	Tilt leftward.	Tilt rightward.
Control Stick (elevator)	Tilt forward.	Tilt backward.
Rudder Pedal	Step on the right one.	Step on the left one.
Thrust Lever	Push.	Pull.

- Simultaneously pressing the SERVICE button and the TEST button returns the Test Menu on the screen.

C. OUTPUT TEST

Selecting OUTPUT TEST displays the following on the monitor and allows the status of Lamp to be checked. In this mode, periodically check the lamp status.

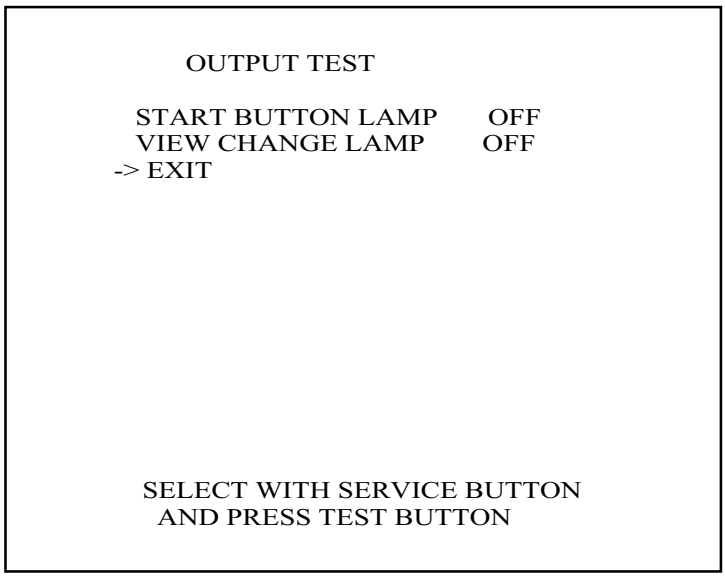


FIG. 9. 3 c OUTPUT TEST

- Select the item with the SERVICE button and press the TEST button to alternate the display to and from ON and OFF. Outputting is to correspond to the ON/OFF alternation.
- When exiting from OUTPUT TEST with ON display, all of ON displays change to OFF.
- Bring the arrow to EXIT and press the TEST button to return to the menu mode.

D. GAME ASSIGNMENTS

When GAME ASSIGNMENTS are selected, the following appears on the monitor and Game Difficulty, etc. can be set. The setting change is not renewed until the TEST mode is exited. After setting change, be sure to exit from the TEST mode.

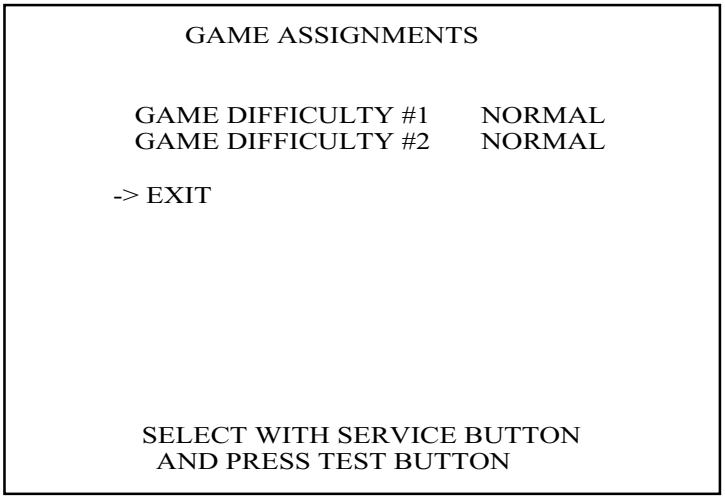


FIG. 9. 3 d GAME ASSIGNMENTS

The GAME DIFFICULTY #1 item is to set the difficulty of the training (for the beginners). The GAME DIFFICULTY #2 item is to set the difficulty of the OPERATION DESERT FIRE (for the intermediates) and the OPERATION RED ROCK (for the experts).
There are 5 levels of difficulty: VERY EASY, EASY, NORMAL, HARD, VERY HARD. The higher the level, the shorter the limit of a playing time; and vice versa.

Bring the arrow to EXIT and press the TEST button to return to the menu mode.

E. VOLUME SETTING

Selecting VOLUME SETTING causes the following to be displayed on the monitor and allows each Control Unit's Volume to be set.
If operability is unsatisfactory, or when adjusting or replacing the Volume, set the Volume in this mode.

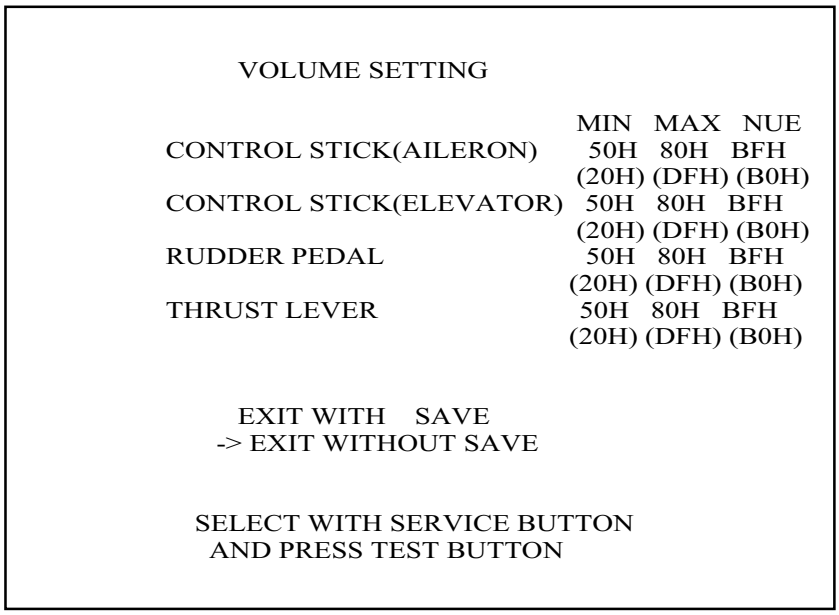


FIG. 9. 3 e VOLUME SETTING

Method of volume setting

The screen shows the present settings in the brackets. Operate each control within its movable range. This action enables to newly input the maximum and minimum settings. Return the control stick and thrust lever to their neutral, central positions. Return the rudder pedals to their original positions. And then select the EXIT WITH SAVE item and press the TEST button; the new settings are saved in the system. (If you select the EXIT WITHOUT SAVE item and press the TEST button, the new settings are not saved.)

F. BOOKKEEPING

Selecting BOOKKEEPING allows the data of operating status in 2 pages.
Each time the TEST button is pressed, the ensuing page appears. Pressing the TEST button while the second page is displayed causes the Menu mode to return on the screen.

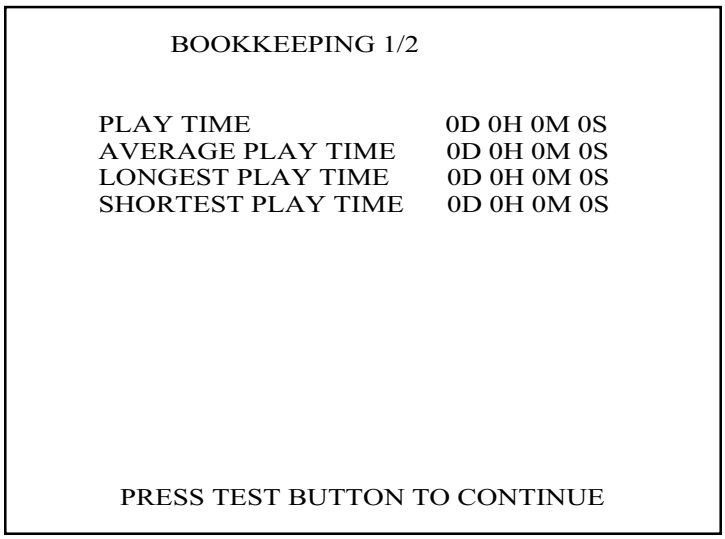
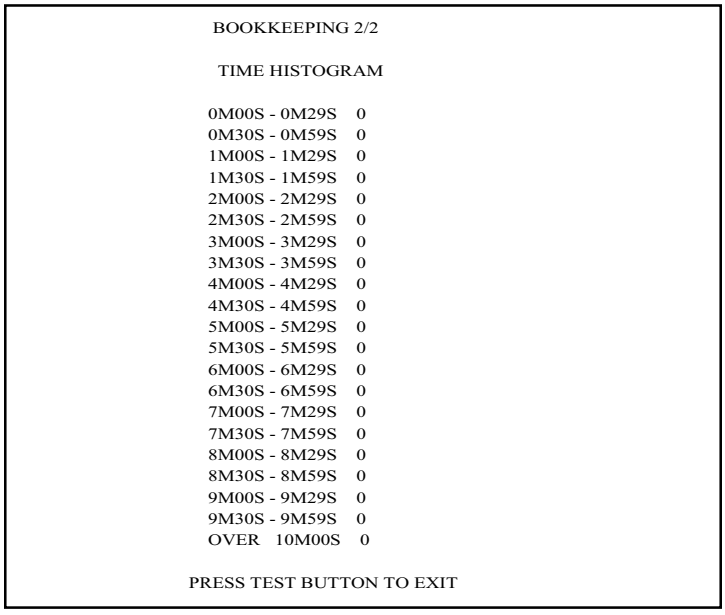

BOOKKEEPING 1/2
PLAY TIME 0D 0H 0M 0S
AVERAGE PLAY TIME 0D 0H 0M 0S
LONGEST PLAY TIME 0D 0H 0M 0S
SHORTEST PLAY TIME 0D 0H 0M 0S
PRESS TEST BUTTON TO CONTINUE

FIG. 9. 3 f a BOOKKEEPING (1/2)

- PLAY TIME:
  Refers to the game play time.



In Page 2/2, Histogram of Number of Play as against Play Time is displayed. For setting the DIFFICULTY, refer to this histogram.

FIG. 9. 3 f b BOOKKEEPING (2/2)

By-playtime play frequency bookkeeping is displayed in increments of 30 seconds from 0M00S to 9M59S. Playtime in excess of 10 minutes is displayed all in the category of OVER 10 M00S.

G. BACKUP DATA CLEAR

This allows the contents of BOOKKEEPING and the Ranking data to be cleared. Despite the "clear" execution, the settings of GAME ASSIGNMENTS do not change.

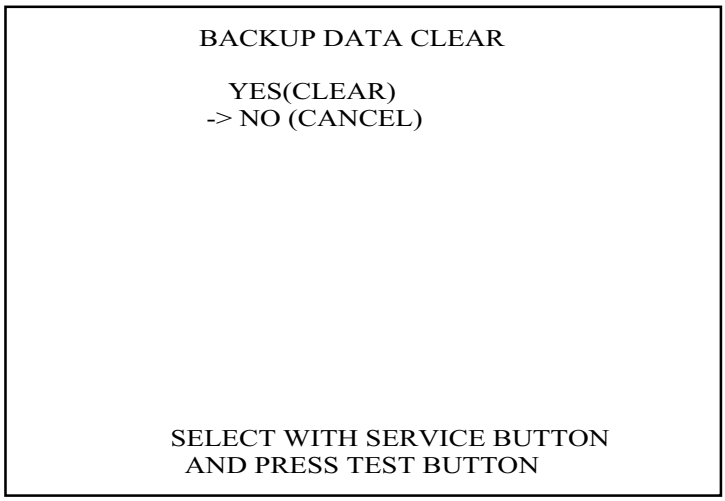


FIG. 9. 3 g BACKUP DATA CLEAR

When clearing, use the SERVICE button to bring the arrow (- >) to "YES (CLEAR)" and press the TEST button. When the data has been cleared, "COMPLETED" will be displayed. Bring the arrow to "NO (CANCEL)" and press the TEST button to return to the Menu mode without clearing the data.

10. CONTROL PANEL

- Before starting to work, ensure that the Power SW is OFF. Failure to observe this can cause electric shock or short circuit.
- Use care so as not to damage wirings. Damaged wiring can cause electric shock or short circuit.
- Do not touch undesignated places. Touching places not designated can cause electric shock or short circuit.
- This work should be performed by the Location's Maintenance Man or Serviceman. Performing work by non-technical personnel can cause electric shock hazard.
- Do not perform work other than those specified in this Manual in order to prevent accidents during performing work and operation after performing work. Performing work not specified in this Manual may require special training for this product. If performing work other than those stated in this manual is required for repair, contact the offices herein stated in this manual or where you purchased the product from and ask for repair or inquire how to repair.
- Be very careful when soldering. Handling a soldering iron carelessly may result in a fire or a burn.
- Be careful when heating the heat-shrinkable tubing. Heating it carelessly may result in a fire or a burn.

- When opening or closing the control panel, do so slowly with using your both hands to hold it. The control panel may be closed by itself due to its own weight. If this happens, you may pinch your hands or fingers in the control panel or be bruised.
- Use care when handling the parts inside the control panel. Be careful so as not to cause damaging, missing, or deforming the parts. Damaging small portion of a part can cause malfunctioning.
- When securing the plastic-made parts, do not excessively fasten screws and nuts. Failure to observe this may damage the parts and cause injury due to fragments resulting from damage.

This game machine is equipped with the control panel and the pedal units, each used as an operating and inputting device when you are playing the game. The control panel provides the control stick, thrust lever, start button, and view change button. The gun button and the missile button are mounted on the control stick while the air brake button on the thrust lever.
Test these devices monthly and make sure that they perform normally. If any one of them performs abnormally, reset its volume values on the VOLUME SETTING screen. If the problem is still reproduced, then fix it because it may be failed.

10 - 1 OPENING THE CONTROL PANEL

Open the control panel in the following procedure when servicing any one of the input devices on the control panel (resetting the volume value, replacing some parts, greasing, etc.).

(1) Disconnect the power.

(2) Remove the 4 tamperproof screws.

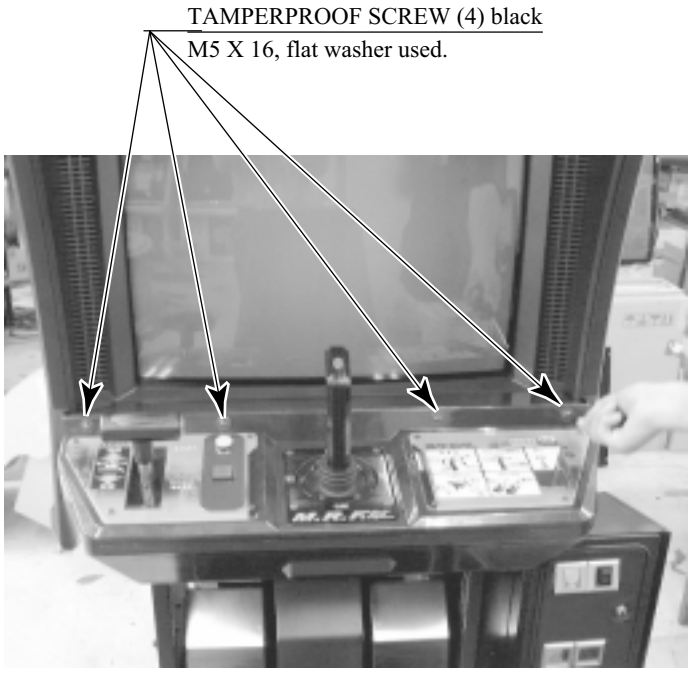


PHOTO 10. 1 a

(3) Open the control panel with using your both hands to securely hold it. The control panel may be closed by itself due to its own weight. Keep holding the control panel securely, therefore, until the internal chain is tensed to support it. Be careful not to release your hands from the control panel earlier; otherwise you may pinch your hands or fingers in the control panel or be bruised.

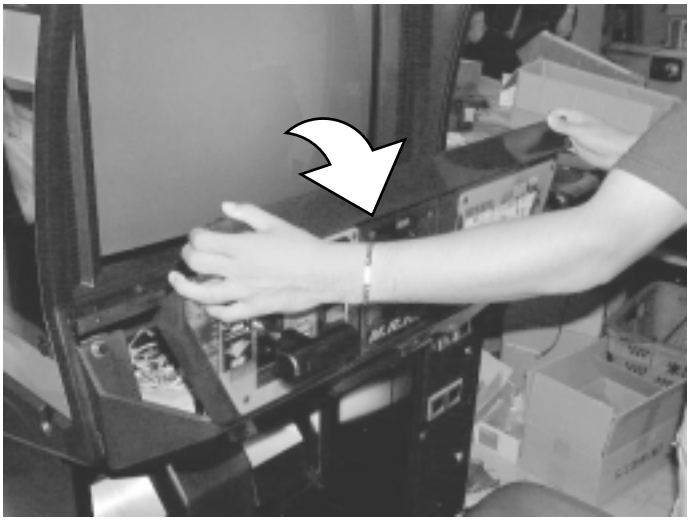


PHOTO 10. 1 b

10 - 2 REPLACING THE VOLUME OF THE CONTROL SITCK (an analog joystick)

If the control stick operates unsatisfactorily, reset its volume values on the VOLUME SETTING screen. If the problem is still reproduced, then replace the volume because it may be failed.
Remove the control stick from the control panel, and then replace the volume in the under-described procedure.
CAUTION: Remove the control stick from the control panel before proceeding to replace the volume. Failure to do so may cause the wires to be damaged and the wire covers to be melted. Therefore, do not fail to observe this important instruction.

Prepare the following tools:
Wrench (a standard accessory) or screwdriver for tamperproof screws; Phillips head screwdriver; Wrenches or screwdrivers for hexagon nuts of 8 mm and 12 mm in width across flats; Nippers; Cutter; Wire strippers; Soldering iron; Industrial-use dryer.

(1) Disconnect the power, and open the control panel. (See the section 10-1.)

(2) Unclamp the wires around the control stick. Then disconnect the control stick's 2 wire connectors.

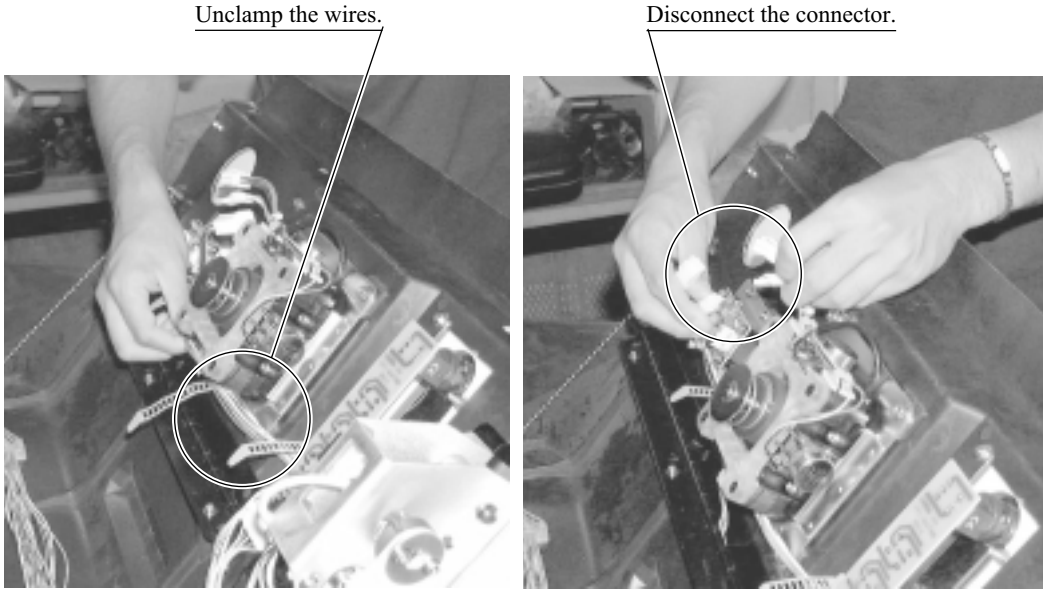
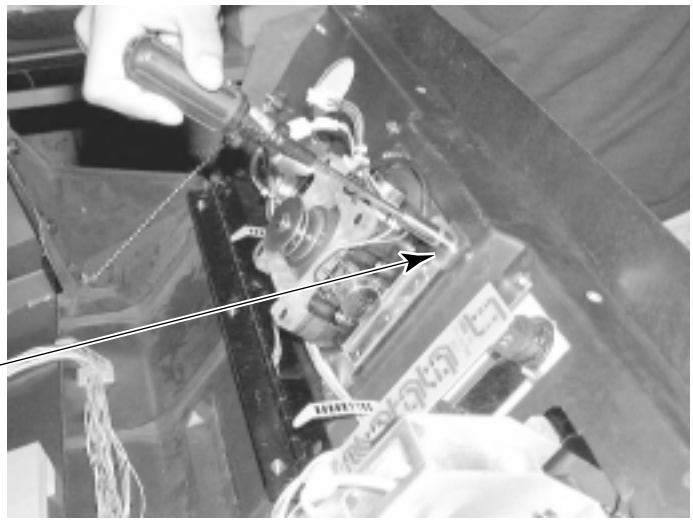


PHOTO 10. 2 a

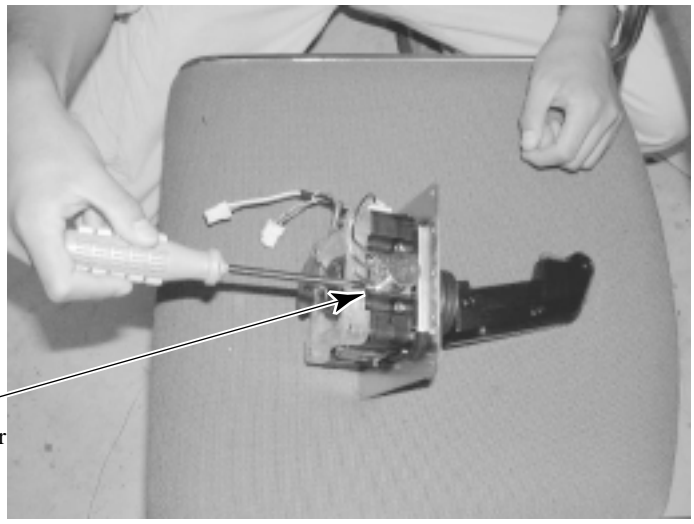
(3) Remove the 4 hexagon nuts carefully because the unfastened carriage bolts may be dropped and missing.
NOTE: The control stick is fixed with the 4 pairs of carriage bolts and hexagon nuts.



(4) Detach the control stick from the control panel. Be careful not to damage the wires.

PHOTO 10. 2 b

⑤ Remove the 2 screws. Detach the volume with the bracket from the control stick.



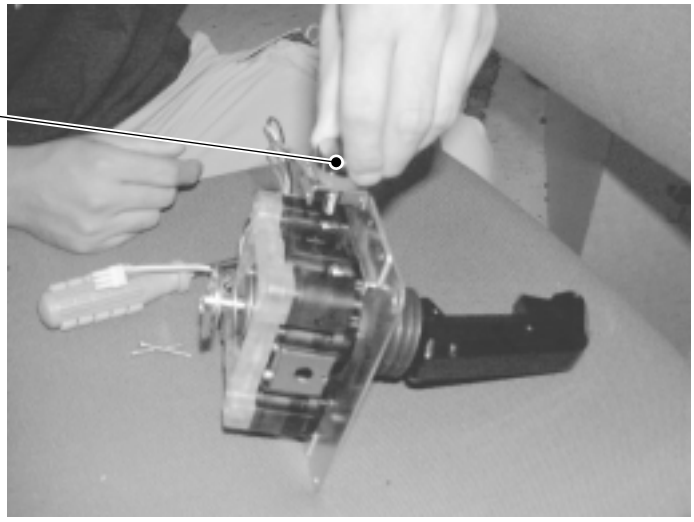


PHOTO 10. 2 c

⑥ Remove the hexagon nut that fixes the volume onto the bracket. Detach the volume from the bracket.

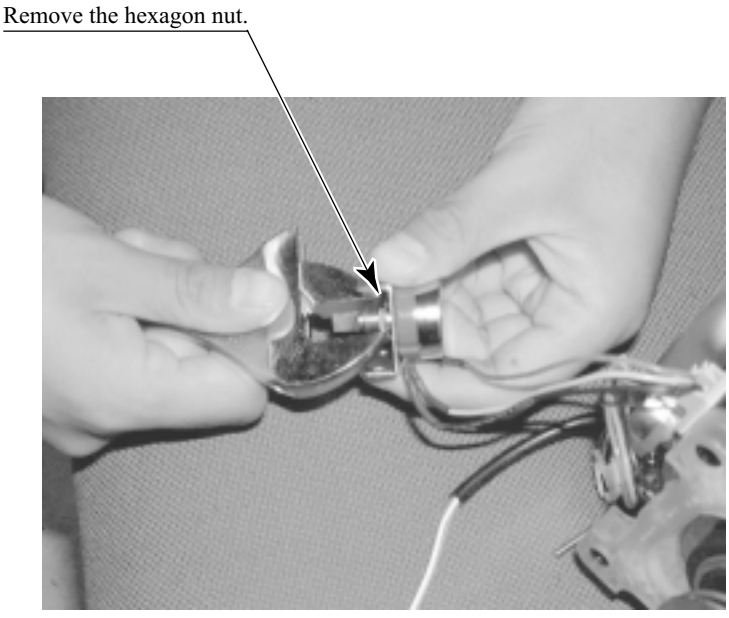


PHOTO 10. 2 d

⑦ Use the nippers to nip the wires off the volume. Select a nipping position that is as closely as possible to the volume, because the wires will be reused.

⑧ Remove the present heat-shrinkable tubings from the wires.

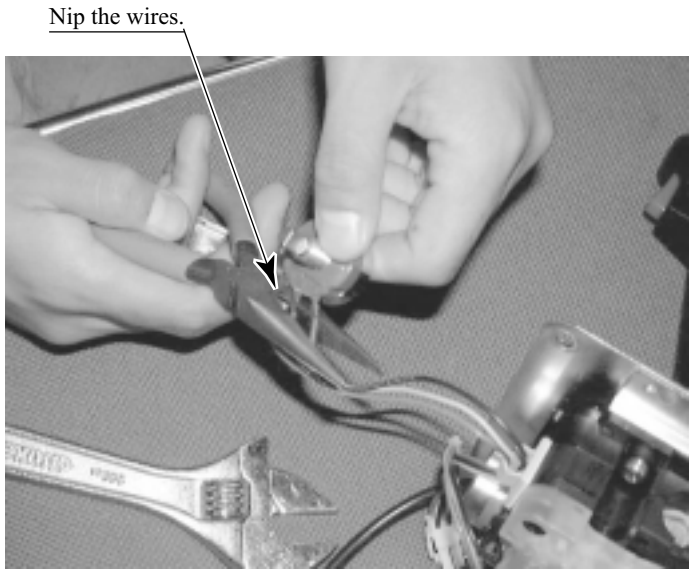


PHOTO 10. 2 e

⑨ Use the wire strippers to strip the covers of the wires. Expose the end of the conductors about 5 mm.

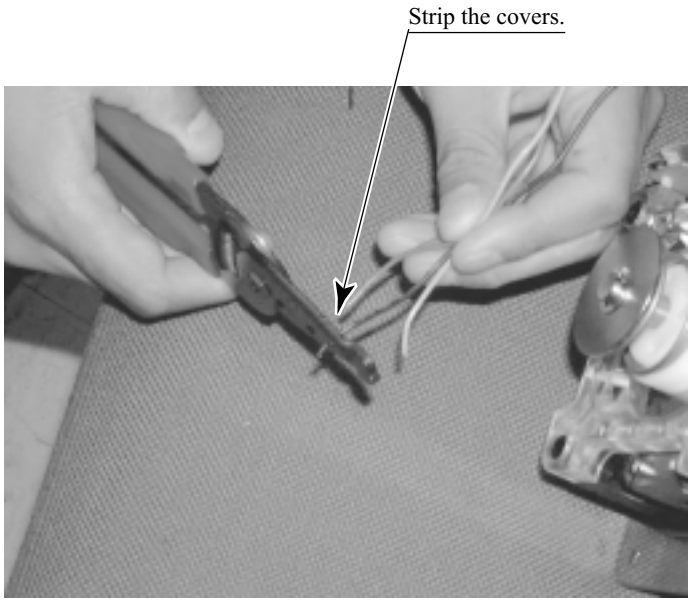


PHOTO 10. 2 f

⑩ Insert each wire into a heat-shrinkable tubing (a standard accessory).

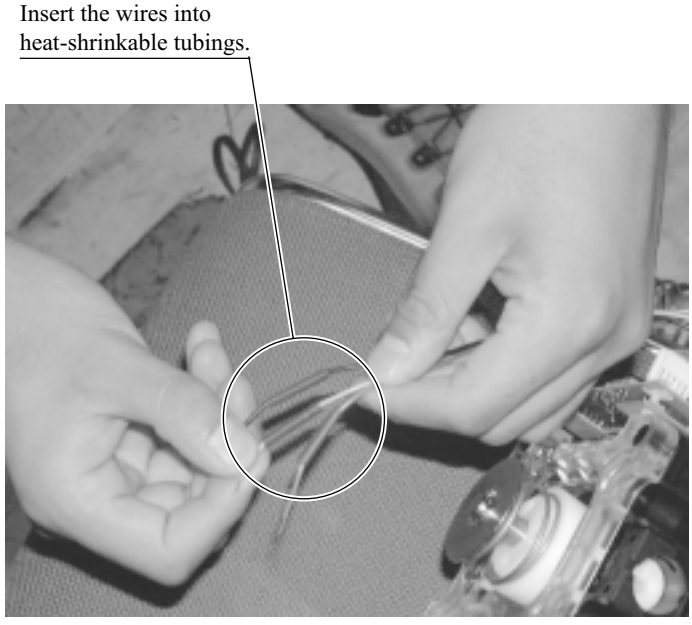


PHOTO 10. 2 g

⑪ Solder the wires onto the new volume's terminals. Carefully read the wiring connection diagram and thereby solder correctly.

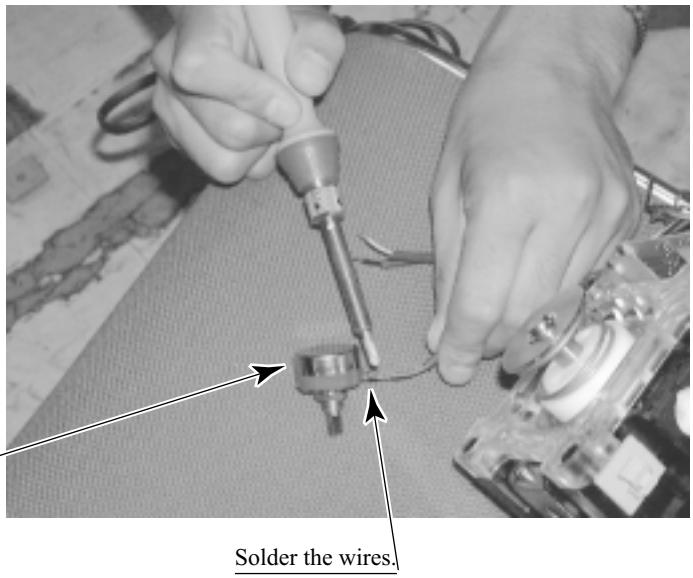


PHOTO 10. 2 h

⑫ Heat the heat-shrinkable tubings, with the industrial-use dryer, so that they can closely cover the soldered sections.

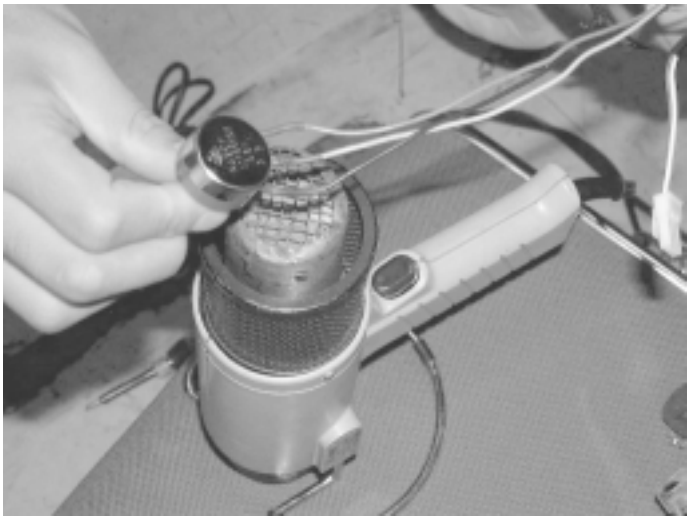


PHOTO 10. 2 i

⑬ Attach the volume onto the bracket. Fasten the 2 screws to mount the volume with the bracket onto the control stick body.

⑭ Attach the control stick onto the control panel.

⑮ Connect the power, and set the volume on the VOLUME SETTING screen. (See the Section 9-3.)

⑯ Test the volume on the INPUT TEST screen, and make sure that the volume values change smoothly according to the operation of the control stick.

10 - 3 REPLACING THE CONTROL STICK'S MICROSWITCH

If the gun button or missile button operates unsatisfactorily, replace the microswitch in the control stick because it may be failed.
Remove the control stick from the control panel, and then replace the microswitch (and any other parts inside the control stick's grip, too) in the under-described procedure.
CAUTION: Remove the control stick from the control panel before proceeding to replace the microswitch. Failure to do so may cause some parts to be lost and the replacement work to be harder. Therefore, observe this 'troublesome' but important instruction.

Prepare the following tools:
Wrench (a standard accessory) or screwdriver for tamperproof screws; Phillips head screwdriver; Wrench or screwdriver for hexagon nuts of 8 mm in width across flats; Soldering iron.

(1) Disconnect the power, open the control panel, and detach the control stick. (See the section 10-2.)

(2) Push down the rubber cover on the control stick's root.

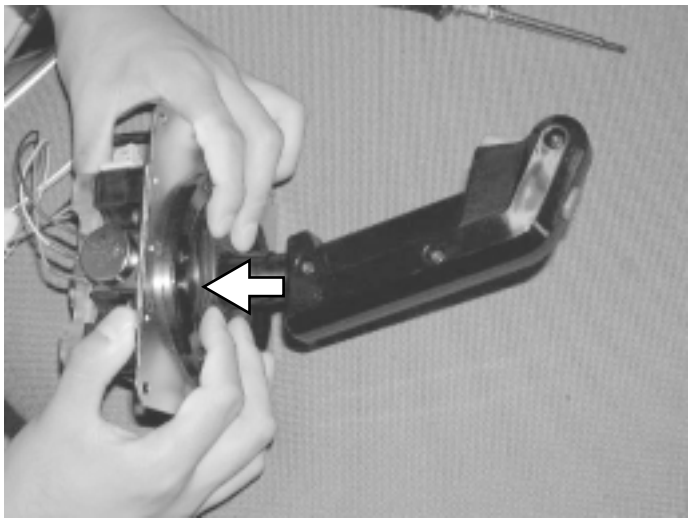
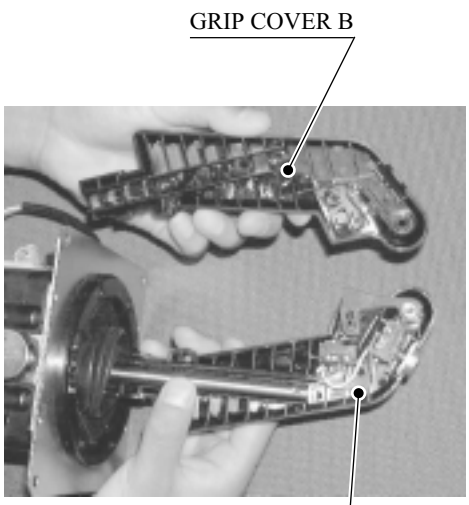


PHOTO 10. 3 a

(3) Remove the 3 tamperproof screws to detach the grip cover B. Be careful not to lose the parts inside the grip because they are now detachable.



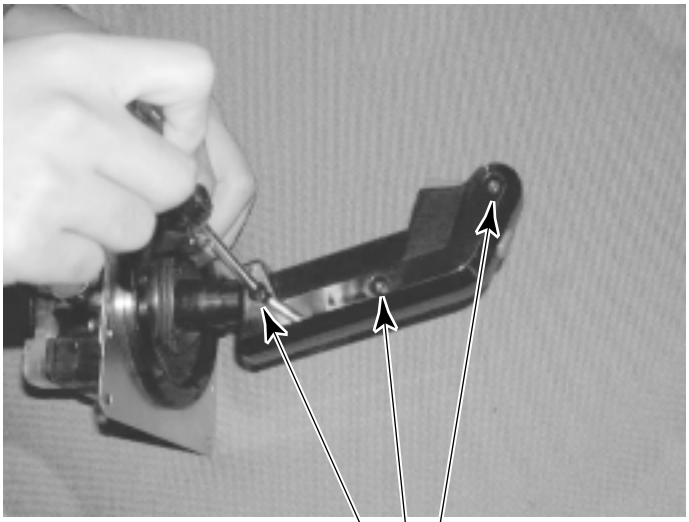


PHOTO 10. 3 b

④ Remove the tapping screws, 2 each for a microswitch, to detach the 2 microswitches from grip cover A.

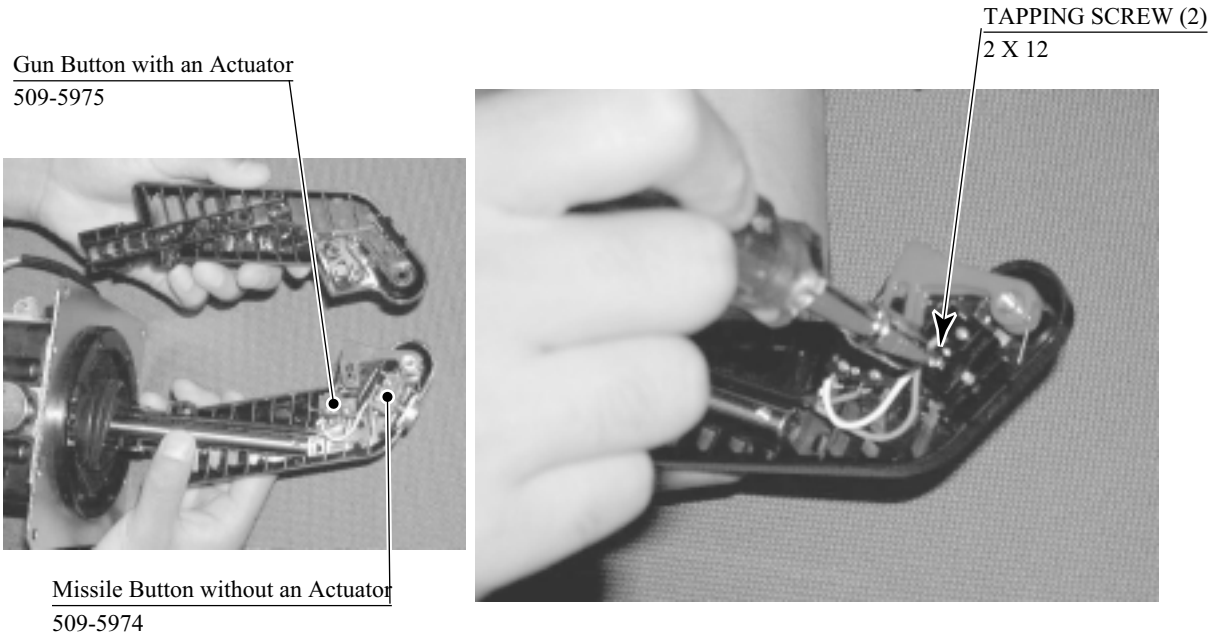


PHOTO 10. 3 c

⑤ Use the soldering iron to unsolder the wires from the present microswitch's terminals.

⑥ Solder the wires onto the new microswitch's terminals.

⑦ Fasten the tapping screws, 2 each for a microswitch, to attach the 2 microswitches onto grip cover A. Be careful not to fasten them too tightly because doing so may damage the microswitches and/or the screw holes of the grip cover A.

⑧ Fasten the 3 tamperproof screws to attach the grip cover B. Be careful not to fasten them too tightly.

⑨ Attach the control stick on the control panel.

⑩ Connect the power. Test the gun and missile buttons on the INPUT TEST screen (See the Section 9-3.), and make sure that they can operate normally.

10 - 4 ADJUSTING AND REPLACING THE VOLUME OF THE THRUST LEVER

If the thrust lever operates unsatisfactorily, reset its volume values on the VOLUME SETTING screen. If the problem is still reproduced, then adjust the gears because the gears may be poorly engaged, or replace the volume because it may be failed.
Readjust the engagement of the gears or replace the volume in the under-described procedure.

Prepare the following tools:
Wrench (a standard accessory) or screwdriver for tamperproof screws; Phillips head screwdriver; Slotted-head screwdriver; Wrench for hexagon nuts of 11 mm in width across flats; Soldering iron.

Adjusting the Volume

1. Disconnect the power, and open the control panel. (See the section 10-1.)

2. Loosen the 2 screws that fix the thrust lever's VR bracket, and thus disengage the gears.

PHOTO 10. 4

3. Place the thrust lever in a neutral middle position. Engage the gears so that the volume shaft's D-cut end faces as specified by the Figure 10.4a.

4. Fasten the 2 screws that fix the thrust lever's VR bracket.

5. Connect the power, and set the volume on the VOLUME SETTING screen. (See the Section 9-3.)

6. Test the volume on the INPUT TEST screen, and make sure that the volume values change smoothly according to the operation of the thrust lever.

7. Close the control panel.

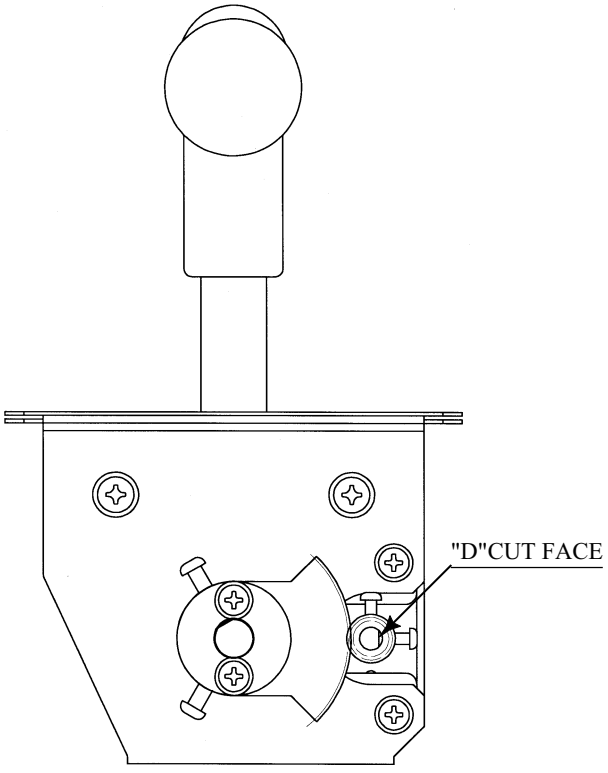


FIG. 10. 4 a

Replacing the Volume

Install the replacement volume to the direction as specified by the Figure 10.4a; then the lever can be seated within the volume shaft's rotating range. Failure to observe this instruction may cause the volume to be damaged if you fully pull or push the lever.

1. Disconnect the power, and open the control panel. (See the section 10-1.)
2. Unclamp the wires of the present volume, and disconnect the connector.
3. Remove the 2 screws that fix the thrust lever's VR bracket, and detach the VR bracket with the gear and volume.
4. Remove the gear and volume from the VR bracket.
5. Use the nippers to nip the wires off the volume. Select a nipping position that is as closely as possible to the volume, because the wires will be reused.
6. Remove the present heat-shrinkable tubings from the wires.
7. Use the wire strippers to strip the covers of the wires. Expose the end of the conductors of about 5 mm.
8. Insert each wire into a heat-shrinkable tubing (a standard accessory).
9. Solder the wires onto the new volume's terminals.
10. Heat the heat-shrinkable tubings, with the industrial-use dryer, so that they can closely cover the soldered sections.
11. Attach the volume onto the bracket and fix the gear onto the volume shaft.

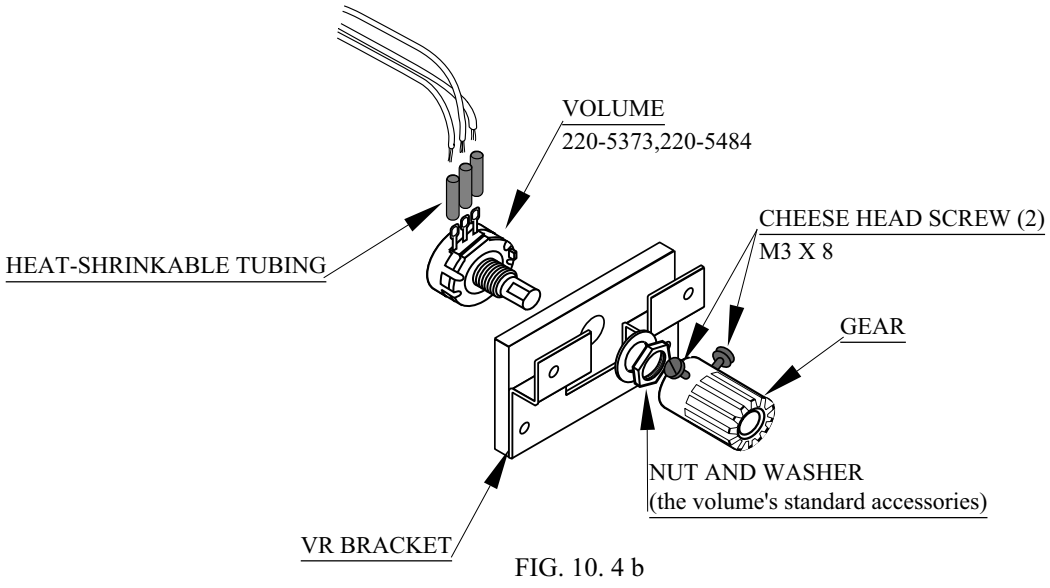


FIG. 10. 4 b

12. Place the thrust lever in a neutral middle position. Engage the gears so that the volume shaft's D-cut end faces as specified by the Figure 10.4a.
13. Fasten the 2 screws that fix the thrust lever's VR bracket.
14. Connect the connector and clamp the wires.
15. Connect the power, and set the volume on the VOLUME SETTING screen. (See the Section 9-3.)
16. Test the volume on the INPUT TEST screen, and make sure that the volume values change smoothly according to the operation of the thrust lever.
17. Close the control panel.

STOP
IMPORTANT

- Be sure to use the designated grease. Using undesignated grease can cause parts damage.
- Do not apply greasing to undesignated places. Failure to observe this can cause malfunctioning or quality deterioration of parts.
- The period for greasing specified herein is a standard. Apply greasing to the specified portions as occasion arises.

Every 3 months grease on the following sections:
Thrust lever : the volume gear's engaging surfaces and the spring, and
Control stick : the contacting surfaces and the spring.
Use the spray-type grease: either the Grease Mate (part number: 090-0066) or the Grease 248 (part number: 090-0070) specified by the Sega. If these are not available, use the alternative one that is applicable for heat-resistant and cold-resistant plastics.

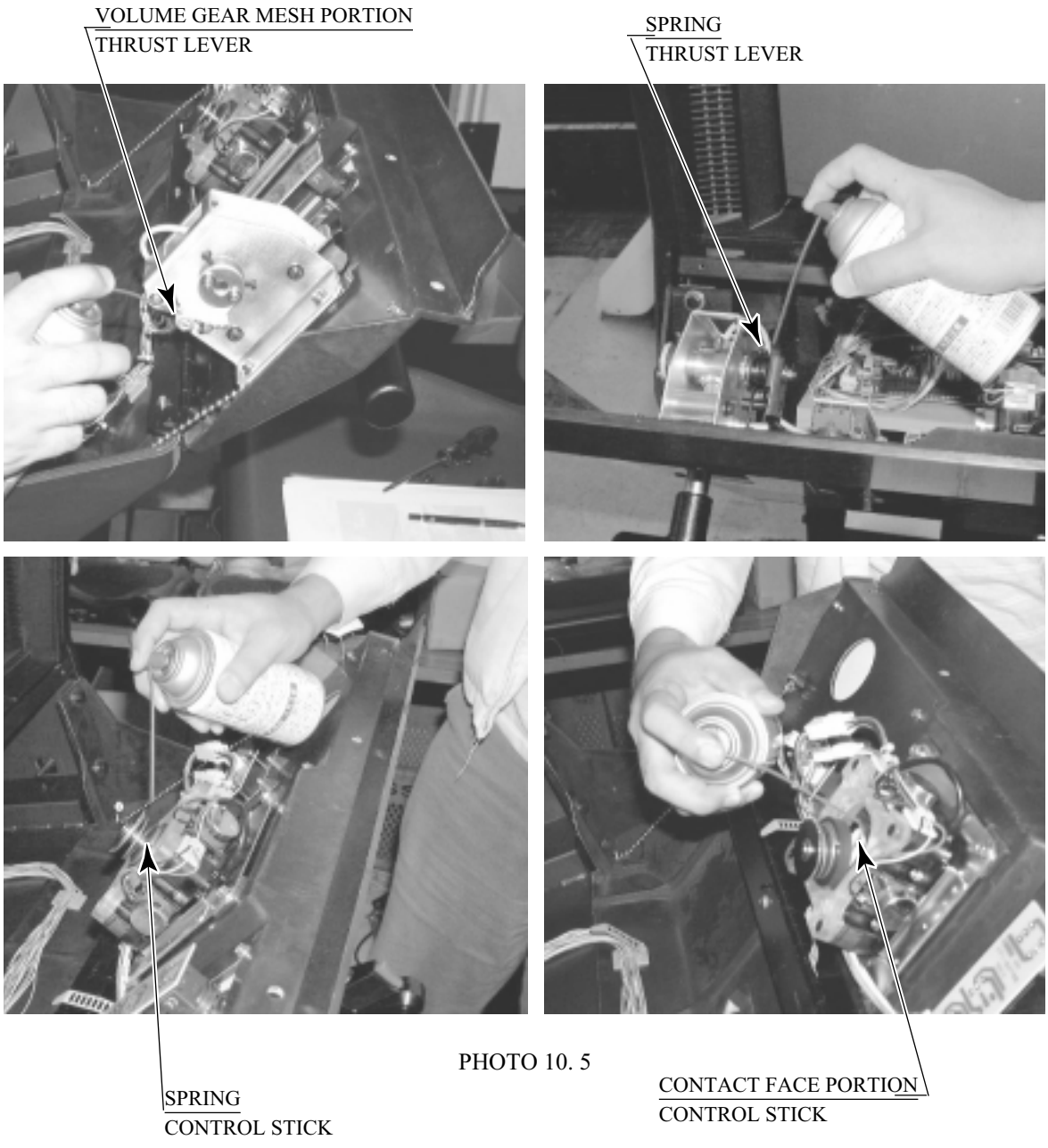


PHOTO 10. 5

10 - 6 REPLACING THE GUIDE PLATE OF THE CONTROL STICK

If the control stick operates unsatisfactorily, replace the guide plate because it may be worn or scratched.
Replace the guide plate in the under-described procedure.

Prepare the following tools:
Wrench (a standard accessory) or screwdriver for tamperproof screws; Wrench for hexagon socket head screws of 4 mm in width across flats.

(1) Disconnect the power, and open the control panel. (See the section 10-1.)

(2) Remove the 4 hexagon socket head screws that fix the guide plate, and replace the guide plate.

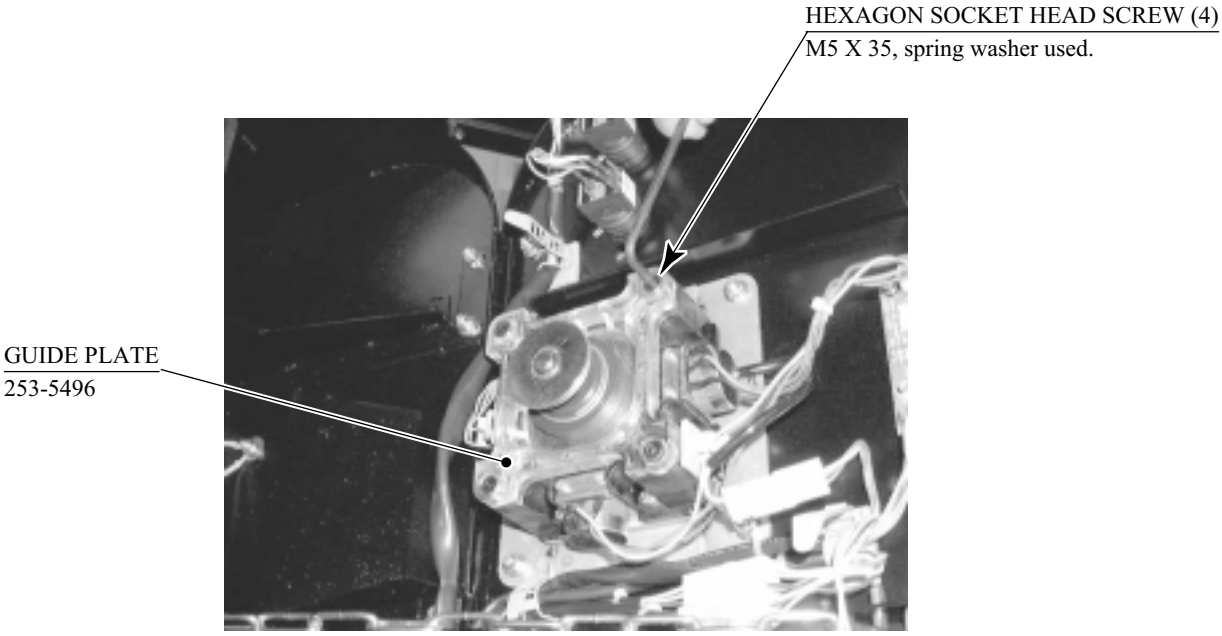


PHOTO 10. 6

11. PEDAL UNIT

WARNING!

- First, be sure to turn power off before performing work. Failure to observe this can cause electric shock and short circuit accidents.
- Use care so as not to damage wirings. Damaged wiring can cause electric shock and short circuit.
- Do not touch undesignated places. Touching places not designated can cause electric shock and short circuit.
- This work should be performed by the Location's Maintenance Man or Serviceman. Performing work by non-technical personnel can cause electric shock.

If the rudder pedals' volume values abnormally change on the INPUT TEST screen, adjust or replace their volumes.

11 - 1 ADJUSTING THE VOLUME

(1) Take out the 4 screws and remove the Pedal Mechanism Cover.

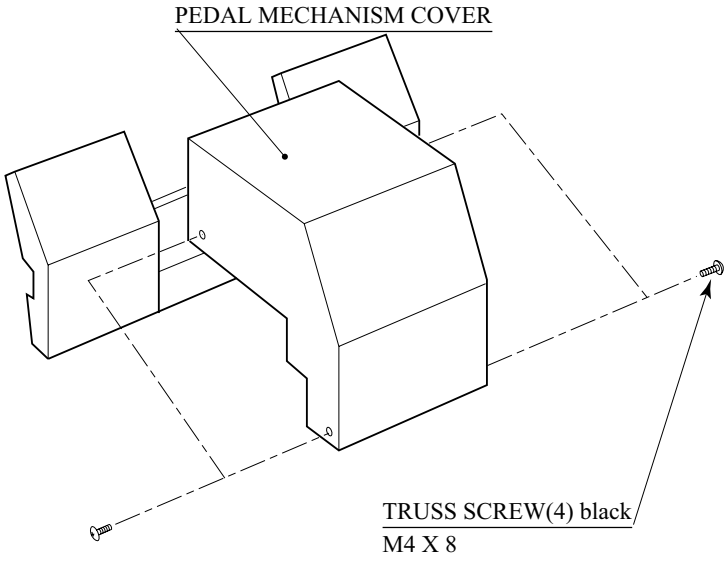


FIG. 11. 1

(2) Loosen the 2 screws securing each Volume Bracket and move the Volume Brackets.

(3) Move the Volume Bracket to disengage gear mesh. Move the Volume Shaft in the manner so that the cut portion of the Volume Shaft faces opposite the center of ADJUST GEAR.

(4) Engage the gears and fasten the 2 screws.

(5) Carefully move the Pedal forward & backward and check to ensure that the Volume range is not exceeded.

(6) Upon completion of adjustment, be sure to perform Volume setting in the TEST mode.

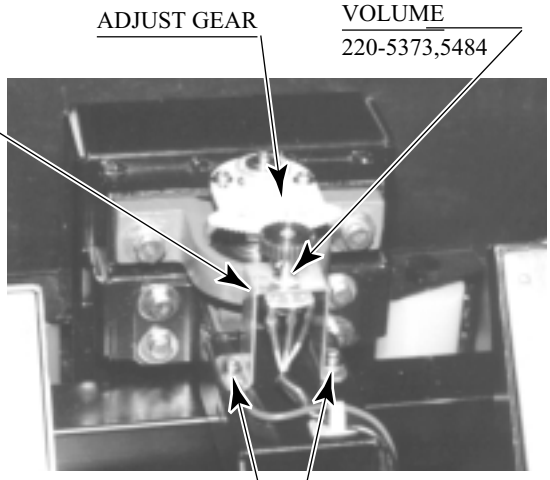


PHOTO 11. 1

11 - 2 REPLACING THE VOLUME

WARNING!

- First, be sure to turn power off before performing work. Failure to observe this can cause electric shock and short circuit accidents.
- Be very careful when soldering. Handling a soldering iron carelessly may result in a fire or a burn.
- Be careful when heating the heat-shrinkable tubing. Heating it carelessly may result in a fire or a burn.

(1) Remove the Volume Gear from the Volume to replace the Volume.

(2) After replacing the Volume, make adjustment as per the procedure of 11-1 ADJUSTING THE VOLUME.

11 - 3 GREASING

WARNING!

First, be sure to turn power off before performing work. Failure to observe this can cause electric shock and short circuit accidents.

STOP

IMPORTANT

- Be sure to use the designated grease. Using undesignated grease can cause parts damage.
- Do not apply greasing to undesignated places. Failure to observe this can cause malfunctioning or quality deterioration of parts.

Apply greasing to the following portions once every three (3) months.
For Spray Grease, use NOK GLUBER L60 or GREASE MATE (PART No. 090-0066).

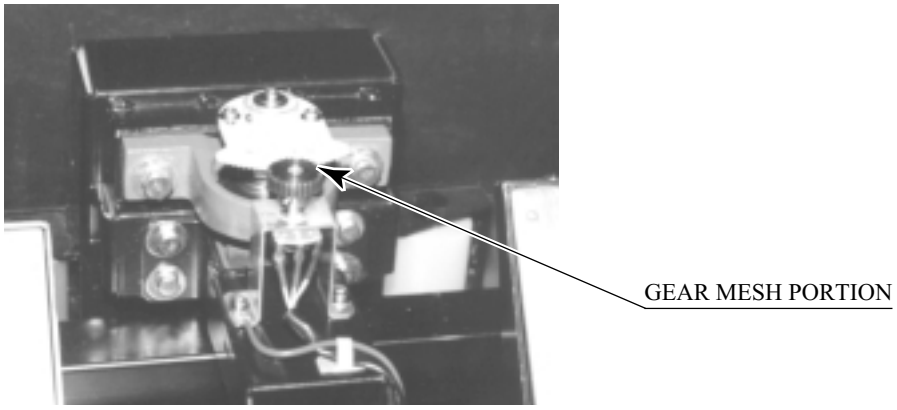


PHOTO 11. 3

12. COIN SELECTOR

HANDLING THE COIN JAM

If the coin is not rejected when the REJECT button is pressed, open the coin chute door and open the selector gate. After removing the jammed coin, put a normal coin in and check to see that the selector correctly functions.

CLEANING THE COIN SELECTOR

STOP
IMPORTANT

- Remove and clean smears by using a soft cloth dipped in water or diluted chemical detergent and then squeezed dry.
- Never apply machine oil, etc. to the Coin Selector.
- After cleaning the Coin Selector, insert a regular coin in the normal working status and ensure that the Selector correctly functions.

The coin selector should be cleaned once every 3 months. When cleaning, follow the procedure below:

1. Turn the power for the machine OFF. Open the coin chute door.
2. Open the gate and dust off by using a soft brush (made of wool, etc.).
3. Remove and clean smears by using a soft cloth dipped in water or diluted chemical detergent and then squeezed dry.
4. Remove the CRADLE.
   When removing the retaining ring (E ring), be very careful so as not to bend the rotary shaft.
5. Remove stain from the rotary shaft and shaft receiving portions by wiping off with a soft cloth, etc.
6. After wiping off as per (5) above, further apply a dry cloth, etc. to cause the coin selector to dry completely.

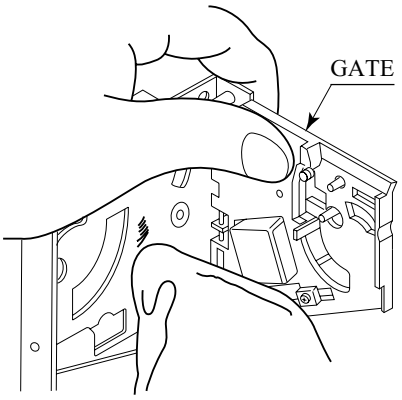


FIG. 12 a

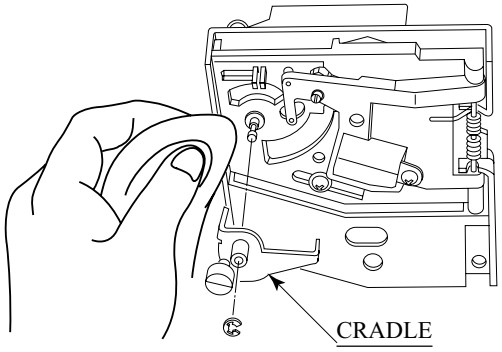


FIG. 12 b

COIN INSERTION TEST

Once every month, when performing the Coin SW Test, simultaneously check the following:

- ☐ Does the Coin Meter count satisfactorily?
- ☐ Does the coin drop into the Cashbox correctly?
- ☐ Is the coin rejected when inserted while keeping the Reject Button pressed down?

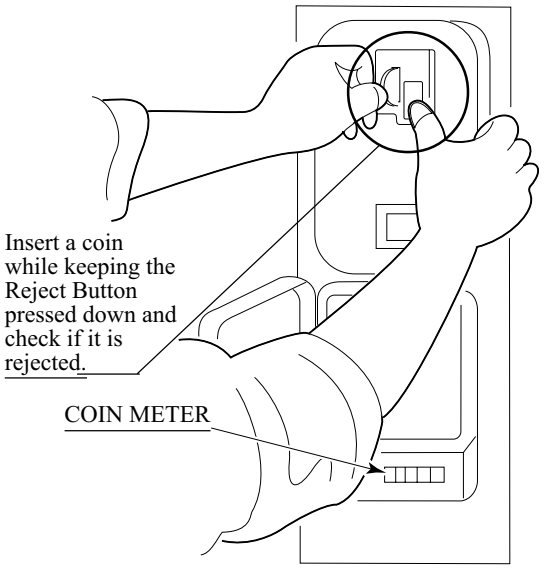
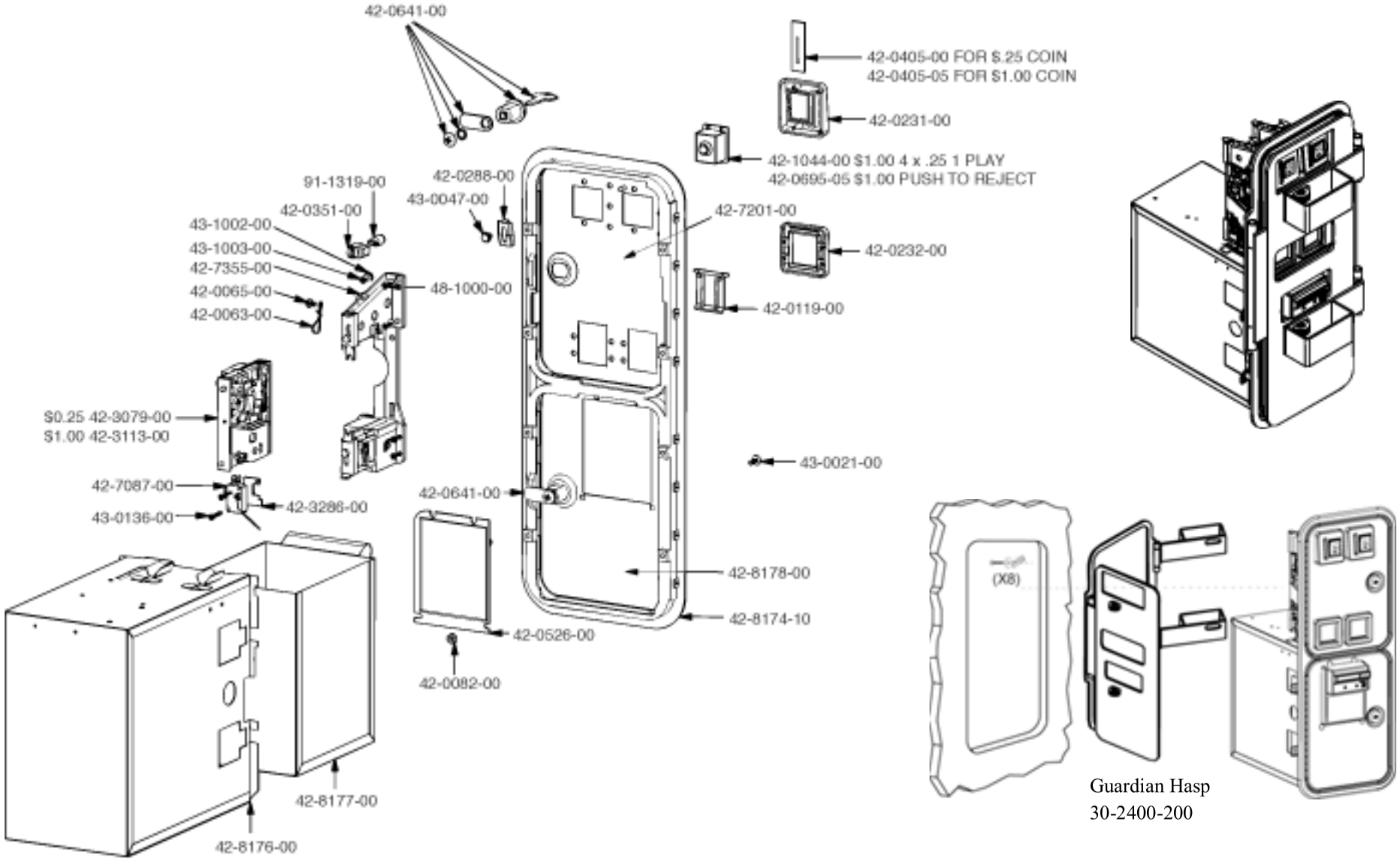


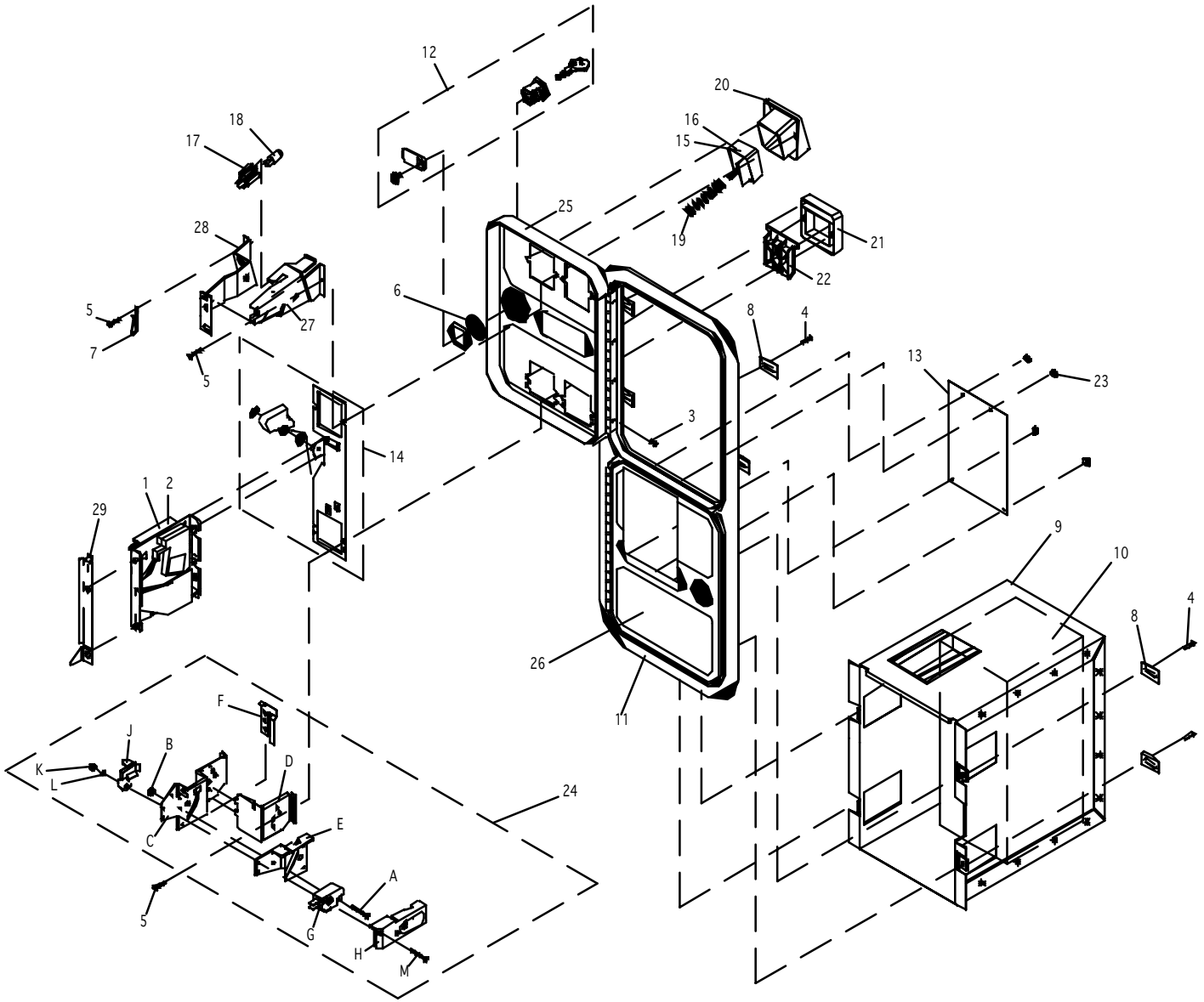
FIG. 12 c

Tom Happ Ph: 847-593-6161 ext. 107
tom.happ@happcontrols.com Fx: 847-956-2091
Happ Controls, 106 Garlisch Drive, Elk Grove, IL 60007
Visit our website http://www.happcontrols.com



WELLS-GARDNER
ELECTRONICS CORPORATION
2701 N. KILDARE CHICAGO, IL 60639
1-800-336-6630 WWW.WGEC.COM

WGD15-2110-01
OVER/UNDER MINI DOOR 2 ENTRIES WITH BILL VALIDATOR BOTTOM DOOR & SPECIAL ENCLOSURE



#	W.G. PART #	DESCRIPTION
1	812-4150-011	S-7 US 25c COIN MECH LEFT
2	812-4050-011	S-10 US $1 COIN MECH RIGHT
3	890-1002-00	HINGE SCREW
4	890-1003-00	CLAMP SCREW
5	890-1017-00	SCREW TRILOBULAR
6	890-1019-00	WASHER INTERNAL TOOTH 3/4"
7	890-1300-00	KEYHOOK
8	891-0514-00	CLAMP UK 5/8" CABINET
9	025X3711-001	ENCLOSURE W/CHUTE
10	025X3712-001	METAL CASHBOX
11	891-0509-162	DOUBLE FRAME
12	891-0547-00	LOCK SINGLE BIT
13	891-0100-4016	COVER PLATE
14	891-1008-107	BASE PLATE ASSEMBLY
15	891-1113-03	E/R BUTTON US 4x25c/$1 LEFT
16	891-1113-011	E/R BUTTON US $1 COIN RIGHT
17	891-1117-00	LAMPHOLDER
18	891-1118-00	LAMP WEDGE BASE 6 VOLT
19	891-1121-00	SPRING, E/R BUTTON
20	891-1311-16	BUTTON BEZEL, NYLON
21	891-1312-16	REJECT BEZEL, NYLON
22	891-1109-16	REJECT FLAP
23	020X1877-005	NUT KEPS #8-32 X 5/16 HEX
24	891-2216-16	MICROSWITCH ASSEMBLY
24A	890-1007-00	SCREW,FLAT HEAD M/S
24B	890-1206-02	KEP NUT
24C	891-1105-01	REJECT CUP SIDE PLATE
24D	891-1106-00	REJECT CUP BASE PLATE
24E	891-1107-00	BRACKET, MICROSWITCH
24F	891-1110-00	ADJUSTER, COIN
24G	891-1116-16	MICROSWITCH, BLACK - MED.
24H	891-1125-00	COVER, PLASTIC
24J	892-1002-07	CLIP, SNAP-ON
24K	892-1002-08	ELASTIC SNAP NUT
24L	892-1002-09	SLEEVE, SNAP-ON
24M	892-1002-11	SCREW, PAN HEAD
25	891-0604-16	MINI DOOR 2 ENTRIES
26	891-0614-16	MINI DOOR W/DBV C/O
27	892-1002-01	BRACKET, LAMPSIDE
28	892-1002-021	BRACKET, COVERSIDE
29	892-1002-10	BRACKET, HOLD DOWN

OPTIONAL DOLLAR BILL ACCEPTOR

- THE COIN DOOR ASSEMBLY USED ON **STRIKE FIGHTER STD** COMES EQUIPPED TO ACCEPT A DOLLAR BILL ACCEPTOR. ALL NEEDED WIRING CONNECTIONS ARE CONVIENENTLY LOCATED INSIDE THE GAME FOR THIS APPLICATION.

- THE COIN DOOR CAN ACCCOMMODATE THE FOLLOWING VALIDATOR(S):

FORWARD-MOST HOLE POSITION	Mars 2000 series
**42-1155-00	MARS VALIDATOR $1, 2, 5 300 CAP

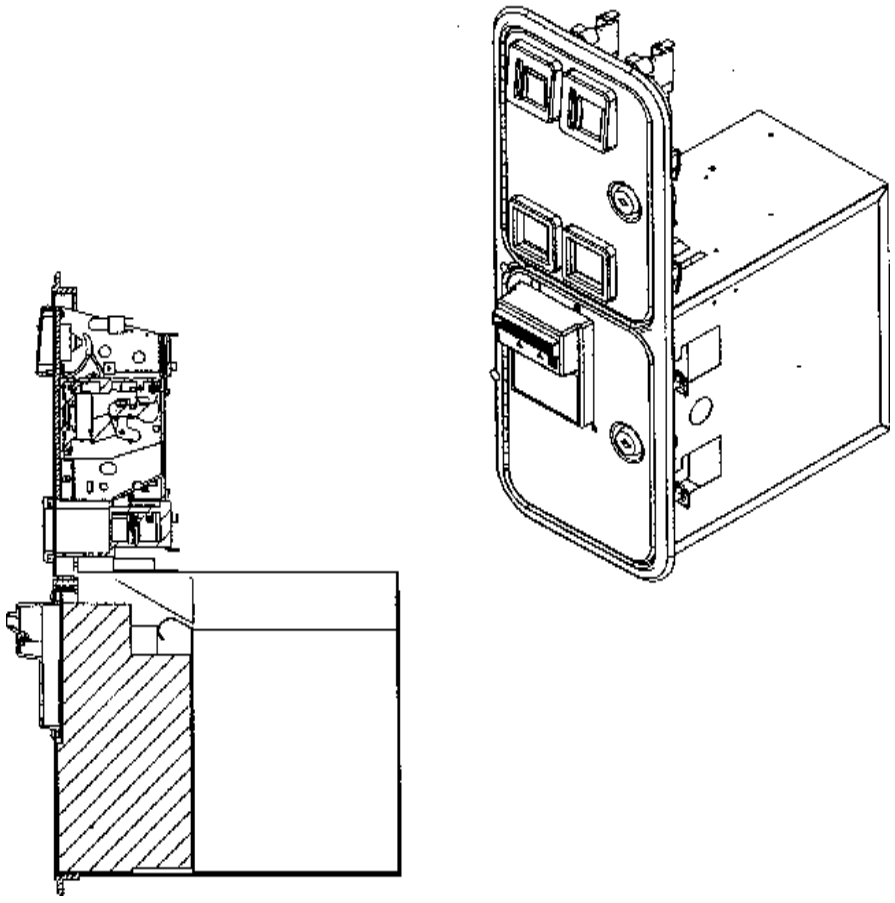
The frame and cashbox enclosure on this coindoor has been modified to accomodate a Mars 2000 series upstacker. A 2000 series stacker can be added by simply removing the cut-out plate. This one entry door can be ordered through Happ Controls or one of Happ Controls authorized distributors. The part number is 40-6000-10EX. The Mars stacker can be obtained through an autherized Mars distibutor.

Note: Your game may have either Happ Controls Coin Door Assembly or the Wells Gardner Coin Door Assembly (not shown).

**Happ part number

Security Locking Bar/Bracket Set Part No.# 999-0966

Coin door shown with optional dollar bill validator inserted



13. MONITOR

13 - 1 CAUTIONS AND WARNINGS CONCERNING THE SAFETY FOR HANDLING THE MONITORS

Before handling the monitors, be sure to read the following explanations and comply with the caution/warning instructions given below. Note that the caution/warning symbol marks and letters are used in the instructions.

Indicates that handling the monitors erroneously by disregarding this warning may cause a potentially hazardous situation, which could result in death or serious injury.

Indicates that handling the monitors by disregarding this caution may cause a potentially hazardous situation, which could result in personal injury and or material damage.

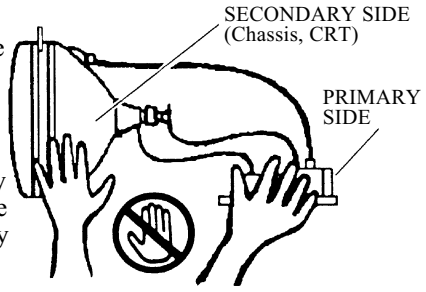
Indicates that access to a specific part of the equipment is forbidden.

Indicates the instruction to disconnect a power connector or to unplug.

- When performing such work as installing and removing the monitor, inserting and disconnecting the external connectors to and from monitor interior and the monitor, be sure to disconnect the power connector (plug) before starting the work. Proceeding the work without following this instruction can cause electric shock or malfunctioning.
- Using the monitor by converting it without obtaining a prior permission is not allowed. SEGA shall not be liable for any malfunctioning and accident caused by said conversion.

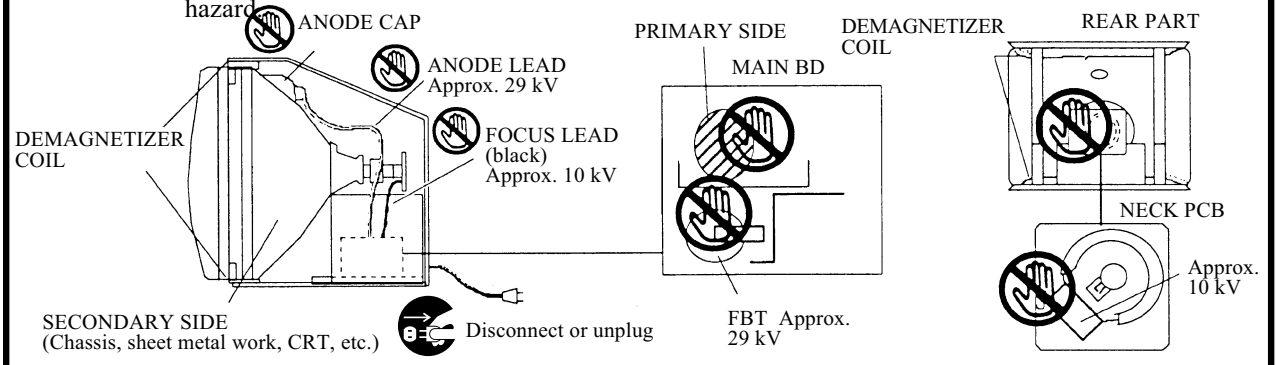
- **Primary side and Secondary side**

The monitor's circuit which is divided into the Primary side and Secondary side, is electrically isolated. Do not touch the primary side, or do not touch both the primary side and the secondary side simultaneously. Failing to observe the instruction can cause electric shock and this is very dangerous. When making monitor adjustments, use a non-conductive driver and make adjustment without touching any part other than the Adjustment V. R. and knob. Also, be sure not to cause a short-circuit to the Primary side and Secondary side. If short-circuited, it can cause electric shock or malfunctioning, which is very dangerous.



- **High-tension Voltage**

Some of the parts inside monitor are subject to high-tension voltage in excess of 20,000 volts and very dangerous. Therefore, do not touch the monitor interior. Should soldering & paper wastes, etc. be mixed in the monitor interior, turn the power off so as not to cause malfunctioning or fire hazard.



- **Connecting the CRT and PCB**

For combining the CRT and PCB, use the specified part No. to maintain the status of adjustments made at the factory. The anode of the CRT itself will be accumulatively charged as time elapses, generating high-tension voltage which is very dangerous. The monitor should be used with the Chassis, CRT and PCB assembled. When repair, etc. is required at the time of malfunctioning, be sure to send it in an "as is assembled" condition. If these are disassembled, what's charged to said high tension voltage can be discharged, causing a very hazardous situation. Therefore, under no circumstances should it be disassembled.

- **Static Electricity**

  Touching the CRT surface sometimes causes you to slightly feel electricity. This is because the CRT surfaces are subject to static and will not adversely affect the human body.

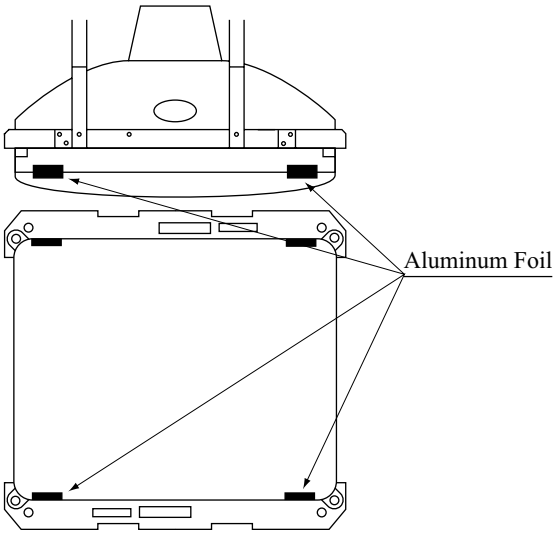
- **Installation and removal**

  Ensure that the Magnetizer Coil, FBT (Fly-Back Transformer), Anode Lead and Focus Lead are not positioned close to the sheet metal work's sharp edges, etc. and avoid damaging the insulated portions so as not to cause electric shock and malfunctioning. (For the name of parts, refer to the above Figures).

CAUTION!

For the purpose of static prevention, special coating is applied to the CRT face of this product. To protect the coating, pay attention to the following points. Damaging the coating film can cause electric shock to the customers.

- Do not apply or rub with a hard item (a rod with pointed edge, pen, etc.) to or on the CRT surfaces.
- Avoid applying stickers, seals, etc. on the CRT face.
- Do not remove aluminum foils from the CRT corners. Removing the aluminum foils can cause static prevention effects to be lowered.



13 - 2 CAUTIONS TO BE HEEDED WHEN CLEANING THE CRT SURFACES

CAUTION!

Static preventive coating is applied to the CRT surfaces. When cleaning, pay attention to the following points. Peeling off of static preventive coat can cause electric shock.

- Remove smears by using a dry, soft cloth (flannels, etc.). Do not use a coarse gauze, etc.
- For smear removing solvent, alcohol (ethanol) is recommended. When using chemical detergent, be sure to follow instructions below:
  - Dilute chemical detergent with water and dip a soft cloth in and then thoroughly wring it to wipe smears off.
  - Do not use a chemical detergent containing an abradant, powder or bleaching agent.
  - Do not use alkaline chemical detergents such as "glass cleaner" available on the market or solvents such as thinner, etc.
- Do not rub or scratch the CRT face with hard items such as brushes, scrub brush, etc.

Clean the CRT surfaces once a week. When cleaning, pay attention to the above caution so that the antistatic coating will not come off.

13 - 3 ADJUSTMENT METHOD

WARNING!

- Monitor adjustments have been made at the time of shipment. Therefore, do not make further adjustment without a justifiable reason. Adjusting the monitor which contains high tension parts is a dangerous work. Also, an erroneous adjustment can cause deviated synchronization and image fault, resulting in malfunctioning.
- When making adjustment, utilize a resinous Alignment Rod. Servicing with bare hand or using conductive tools can cause electric shock.
- Be sure to perform appropriate adjustment of the monitor (projector). For operation of this machine, do not leave monitor's flickering or deviation as is. Failure to observe this can have a bad influence upon the players' or the customers' physical conditions.

To access to the monitor adjustment BD, remove the 2 truss head screws and the CRT adjustment panel on the bottom of the control panel. The monitor adjustment BD is attached on the CRT adjustment panel.

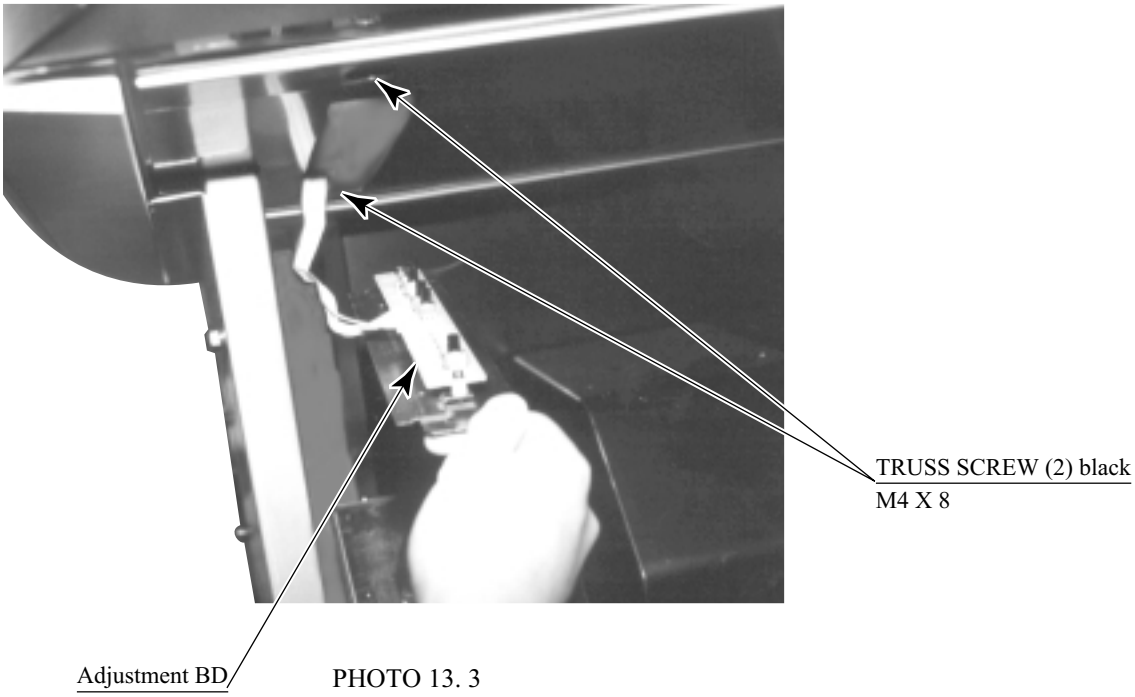
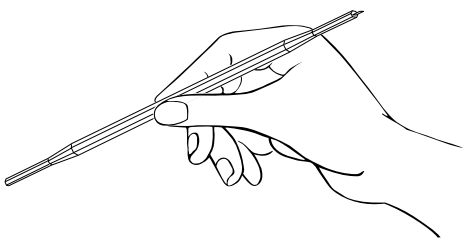


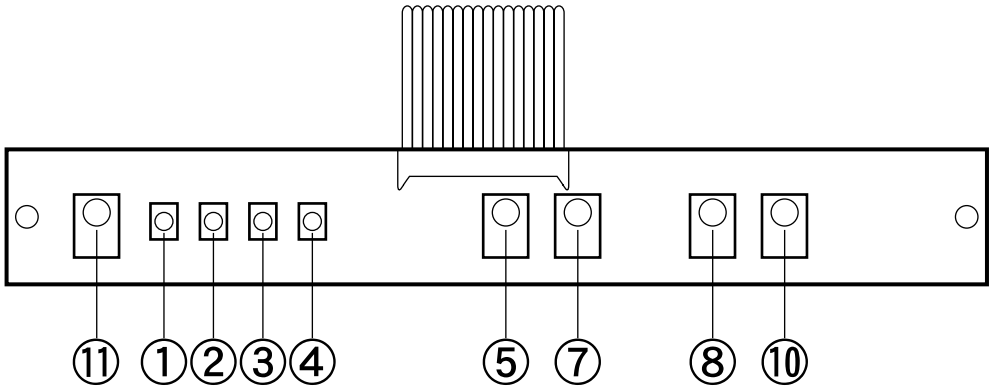
PHOTO 13. 3



For adjustment, use the Resinous Adjustment Rod.

FIG. 13. 3

NANAO monitor: 2 0 0 - 5 9 2 7 (31K mode)



① R-GAIN .....
② G-GAIN ..... Controls colors.
③ B-GAIN .....
④ BRIGHT ..... Controls screen brightness.
⑤ H. SIZE ..... Controls horizontal screen size.
⑦ H. POSI ..... Controls horizontal display position on screen.
⑧ V. SIZE ..... Controls vertical screen size.
⑩ V. POSI ..... Controls vertical display position on screen.
⑪ CONTRAST .... Adjusts image contrast.

14. REPLACING THE FLUORESCENT LAMP, AND LAMPS

WARNING!

- When performing work, be sure to turn power off. Working with power on can cause electric shock and short circuit hazards.
- The Fluorescent Lamp, when it gets hot, can cause burn. Be very careful when replacing the Fluorescent Lamp.
- Be sure to use lamps of the designated rating. Using lamps of undesignated rating can cause a fire or malfunctioning.

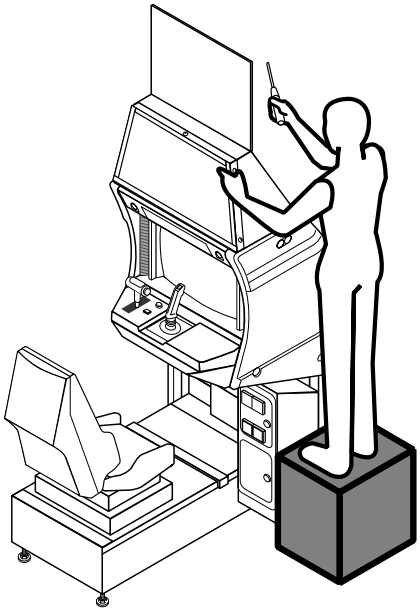
CAUTION!

- To perform work safely and securely, be sure to prepare a step which is in a secure and stable condition. Performing work without using the step can cause violent falling down accidents.
- Be careful when handling the plastic made parts. Failure to observe this may cause injury due to damage or fragments resulting from damage.

INSIDE THE BILLBOARD

① Take out 5 Truss Screws to remove the Sash.

② Remove the Billboard Plate, and the Fluorescent Lamp can be replaced.



When performing work, be sure to use a step.

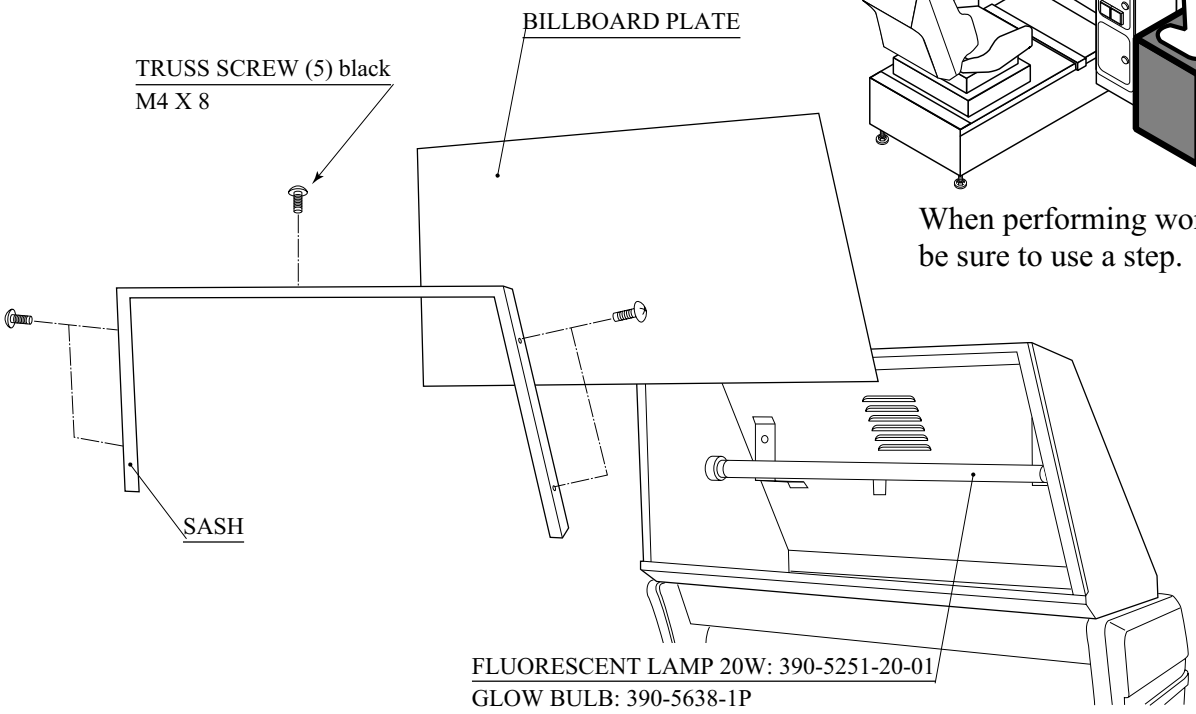


FIG. 14

START BUTTON, VIEW CHANGE BUTTON

1. Disconnect the power, and open the control panel. (see Sec. 10-1)

2. Turn the metal ring at the root of the button.

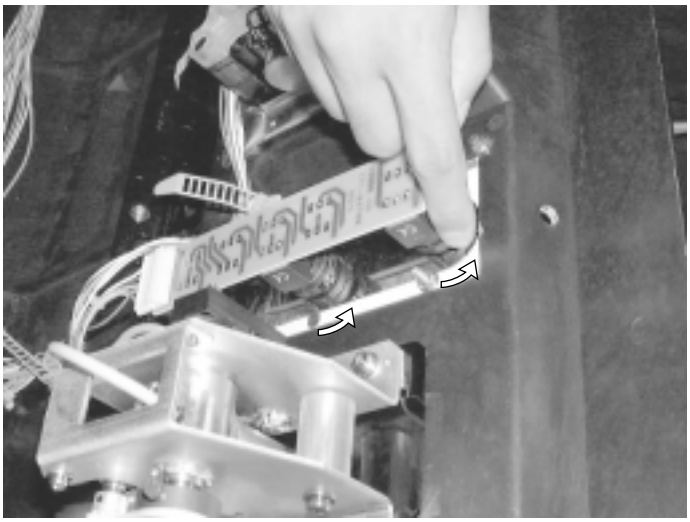


PHOTO 14 a

3. Pull the PCB section from the button body.

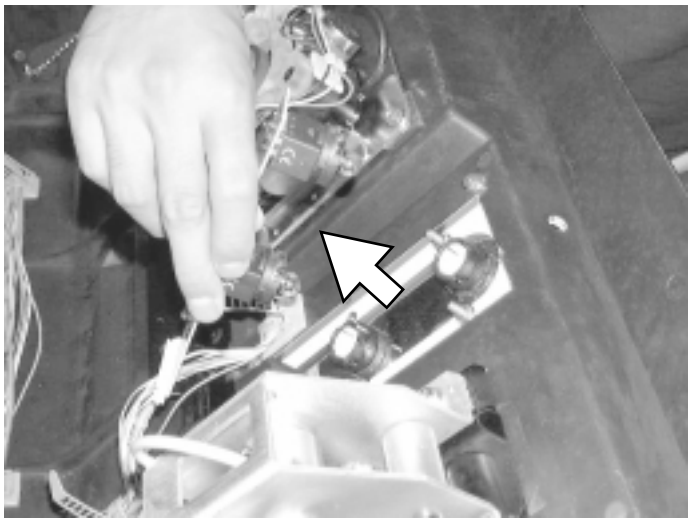
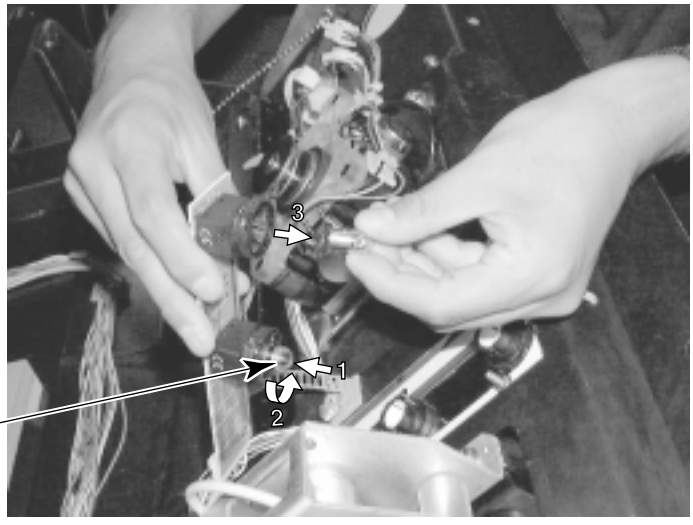


PHOTO 14 b

4. A lamp is in the PCB section. To take it out, push it inward and turn it counterclockwise.



LAMP 6.3V 1W
390-5445-01

PHOTO 14 c

15. PERIODIC INSPECTION TABLE

The items listed below require periodic check and maintenance to retain the performance of this machine and to ensure safe business operation.

WARNING!

- Be sure to check once a year to see if Power Cords are damaged, the plug is securely inserted, dust is accumulated between the Socket Outlet and the Power Plug, etc. Using the product with dust as is accumulated can cause fire and electric shock hazards.
- Periodically once a year, request the place of contact herein stated or the Distributor, etc. where the product was purchased from, as regards the internal cleaning. Using the product with dust as is accumulated in the interior without cleaning can cause a fire or accident. Note that cleaning the interior parts can be performed on a pay-basis.

TABLE 15

ITEMS	DESCRIPTION	PERIOD	REFERENCE
CABINET	Check Adjusters' contact with surface.	Daily	3
CONTOROL PANEL	Check SW.	Monthly	9
	Check VOLUME value.	Monthly	9
	GREASING	Trimonthly	10 - 5
PEDAL UNIT	Check VOLUME value.	Monthly	9
COIN CHUTE TOWER	Check COIN SWes.	Monthly	9
	Coin insertion test.	Monthly	12
	COIN SELECTOR cleaning.	Trimonthly	12
MONITOR	Cleaning CRT face	As occasion arises.	13 - 2
	Check adjustments.	Monthly or when moving	6, 9, 13
SEAT	Antistatic measures	Bimonthly	5
	Greasing to the seat rail	Trimonthly	See FIG.15
GAME BD	MEMORY TEST.	Monthly	9
	Setting check		
INTERIOR	Cleaning	Annually	See above.
POWER PLUG	Inspection and cleaning		
Cabinet surfaces	Cleaning	As occasion arises.	See below.

CLEANING THE CABINET SURFACES

When the cabinet surfaces are badly soiled, remove stains with a soft cloth dipped in water or diluted (with water) chemical detergent and squeezed dry. To avoid damaging surface finish, do not use such solvents as thinner, benzine, etc. other than ethyl alcohol, or abrasives, bleaching agent and chemical dustcloth.

SEAT (Greasing to Seat Rail Portion)

Move the Seat to the rearmost portion and apply spray greasing to the portion shown at the right once every 3 months by using NOK KLUBER L60 or GREASE MATE SEGA PART No. 090-0066. After greasing, move the Seat a few times forward and backward so as to allow the grease to be applied all over uniformly. Be sure to wipe grease which attaches to the surfaces of the PROTECT RUBBER on the Seat Rail, or any excess grease.

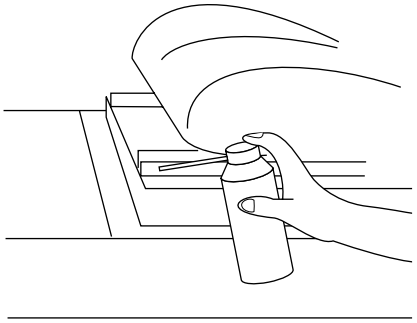


FIG. 15

16. TROUBLESHOOTING

WARNING!

- In order to prevent electric shock and short circuit, be sure to turn power off before performing work.
- Be careful so as not to damage wirings. Damaged wiring can cause electric shock or short circuit.
- After removing the cause of the functioning of the Circuit Protector, reinstate the Circuit Protector. Depending on the cause of the functioning, using the Circuit Protector as is without removing the cause can cause generation of heat and fire hazard.

In case a problem occurs, first check wiring connector connections.

TABLE 16 a

PROBLEMS	CAUSE	COUNTERMEASURES
With Main SW ON, no activation.	Power is not supplied.	Securely insert the power plug into the plug socket.
	Power supply/voltage is not correct.	Make sure that power supply/voltage is correct.
	AC unit's circuit protector has tripped due to an instantaneous overloading.	Rectify the overloading, and reset the circuit protector. (see Sec. 6 3 and FIG. 16)
Fluorescent lamp in billboard cannot be turned on.	Contacting failure of the connectors.	Check the wires between the front cabinet and the billboard, and tightly reconnect if required.
	Fluorescent lamp or glow bulb has reached its service life.	Replace the Fluorescent lamp or glow bulb. (see Sec 14)
No sound is emitted.	Sound volume adjustment is not appropriate.	Adjust the sound adjustment volume of the switch unit. (see Sec. 9-1)
	Contacting failure of the connectors.	Check the wires between the game board, amplifier, speakers, and volumes, and tightly reconnect if required.
	Board and Amplifier malfunctioning.	Perform the SOUND TEST and confirm (see Sec. 9).

CIRCUIT PROTECTOR

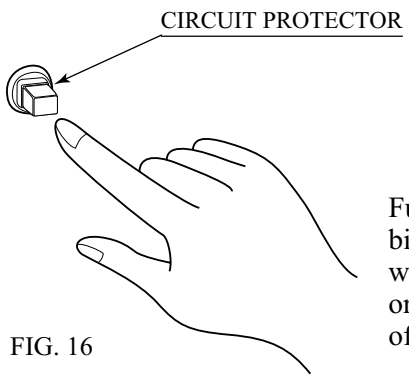


FIG. 16

Functions due to the activation of bimetal. To restore the function, wait for approximately one minute or longer until the bimetal cools off. (Press the Button.)

TABLE 16 b

PROBLEMS	CAUSE	COUNTERMEASURES
Monitor screen is black although sounds are heard and fluorescent lamp is on.	Contacting failure of the video signal connector or the monitor's power connector.	Check the wires to the monitor and to the game board, and tightly reconnect if required.
Monitor screen is uneven in color.	Affected by C. R. T. magnetization.	Press the DEMAG. SW of SWITCH UNIT. (see 9-1)
The color of image on MONITOR screen is incorrect.	Contacting failure of the video signal connector. Incorrect monitor adjustment.	Check the video signal connector, and correctly and tightly reconnect if required. Make appropriate adjustments. (see 13-3)
The on-screen image of the monitor sways and or shrinks.	Power supply/voltage is not correct.	Make sure that power supply/voltage is correct.
All the switches and volumes cannot be input.	Contacting failure of the connectors.	Check the wires between the I/O board and control panel, and tightly reconnect if required. Check the power cord to the I/O board, and tightly reconnect if required.
Switch of control stick, thrust lever, or view change lever cannot be input.	Contacting failure of the connectors. Wires are broken.	Check the wires of the control panel, and tightly reconnect if required. Check if the wires to a movable part are broken or not. Replace the broken wires if any. When replacing, clamp the wires so that they receive no load when a movable part is in action.
Control stick operates unsatisfactorily.	Volume is incorrectly set. Contacting failure of the connectors. Volume malfunctioning. Malfunctioning Amplifier Board.	Set the volume value on the VOLUME SETTING screen. (see 9-3) Check the wires of the control panel, and tightly reconnect if required. Replace the Volume. (see 10-2) 220-5737 Contact where you purchased the product from.

TABLE 16 c

PROBLEMS	CAUSE	COUNTERMEASURES
Rudder pedals and thrust lever operate unsatisfactorily.	Volume is incorrectly set.	Set the volume value on the VOLUME SETTING screen. (see 9-3)
	Volume is incorrectly installed or adjusting gears are improperly engaged.	Reinstall the volume correctly, and set the volume value on the VOLUME SETTING screen. THRUST LEVER: (see 10-4) RUDDER PEDAL: (see 11-1)
	Contacting failure of the connectors.	Check the wires to the control panel and between the front cabinet and rudder pedals, and tightly reconnect if required.
	Volume malfunctioning.	Replace the Volume. 220-5484, 220-5373 THRUST LEVER: (see 10-4) RUDDER PEDAL: (see 11-2)
Start button and view change button cannot flash.	The lamp needs replacement.	Replace the lamp. (see Sec.14)

17. GAME BOARD

WARNING!

- In order to prevent electric shock and short circuit hazards, be sure to turn power off before performing work.
- Be careful so as not to damage wirings. Damaged wiring can cause fire, electric shock or short circuit.
- Do not expose the Game BD, etc. without a good reason. Failure to observe this can cause electric shock hazard or malfunctioning.

CAUTION!

In this product, setting changes are made during the test mode. The Game BD need not be operated. Use the Game BD, etc. as is with the same setting made at the time of shipment so as not to cause electric shock and malfunctioning.

17 - 1 REMOVING THE GAME BOARD

1. Disconnect the power by turning off the main switch.
2. Remove the truss head screw, one each from the right and left sides of the main base.
3. Open the lock on the side of the main base.
4. Turn the knob enabling to tilt the seat. Lay the backrest on the floor so gently that its surfaces are not damaged. For the same purpose use a protective mat between the backrest and the floor.
5. Now you can access to the game board (NAOMI game board). Disconnect all the connectors to the filter board on the game board.
6. Remove the 4 screws that fix the game board onto the wooden plate, and take out the game board.

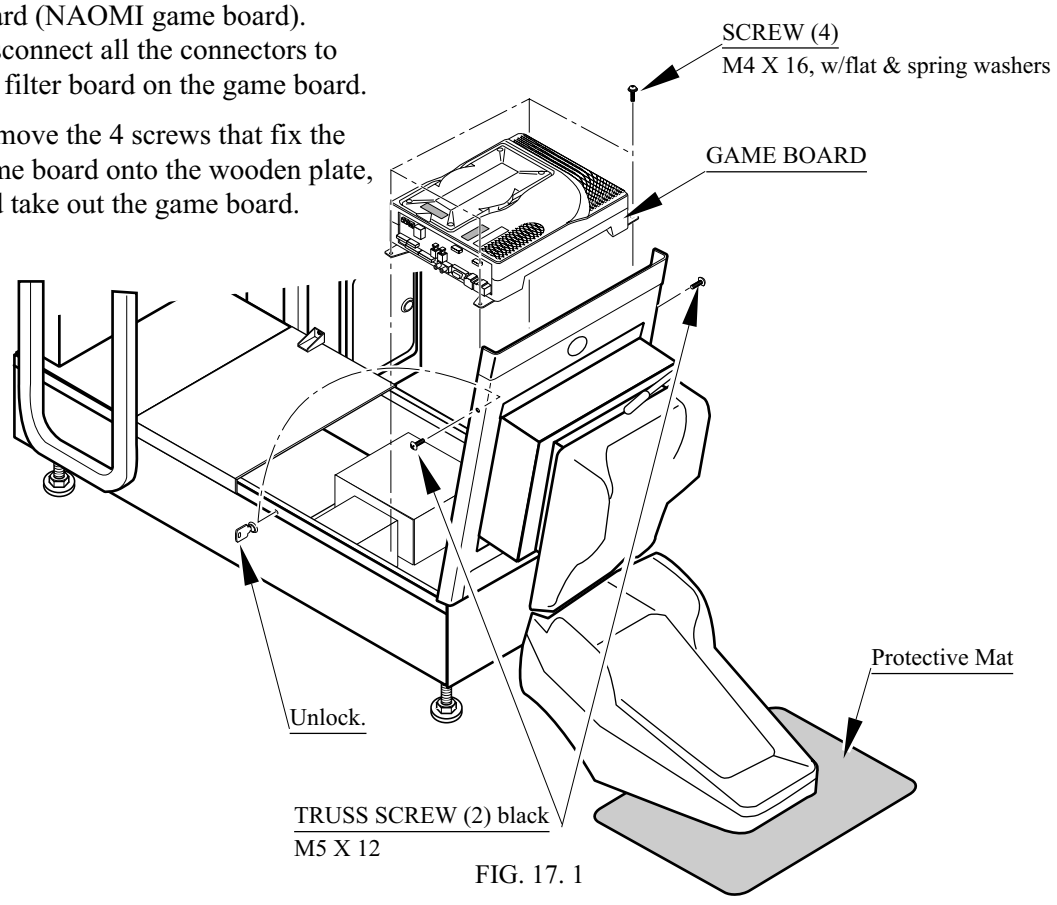


FIG. 17. 1

STOP
IMPORTANT

Be sure to use the DIP SWes of the Filter Board in the specified setting. Failure to observe this may cause irregularities such as unsatisfactory images displayed on the screen.

ASSY CASE NAO MRF USA (840-0035D-01):USA
ASSY CASE NAO MRF EXP (840-0035D-02):OTHERS
ASSY CASE NAO MRF KOR (840-0035D-03):KOREA
ASSY CASE NAO MRF AUS (840-0035D-04):AUSTRALIA

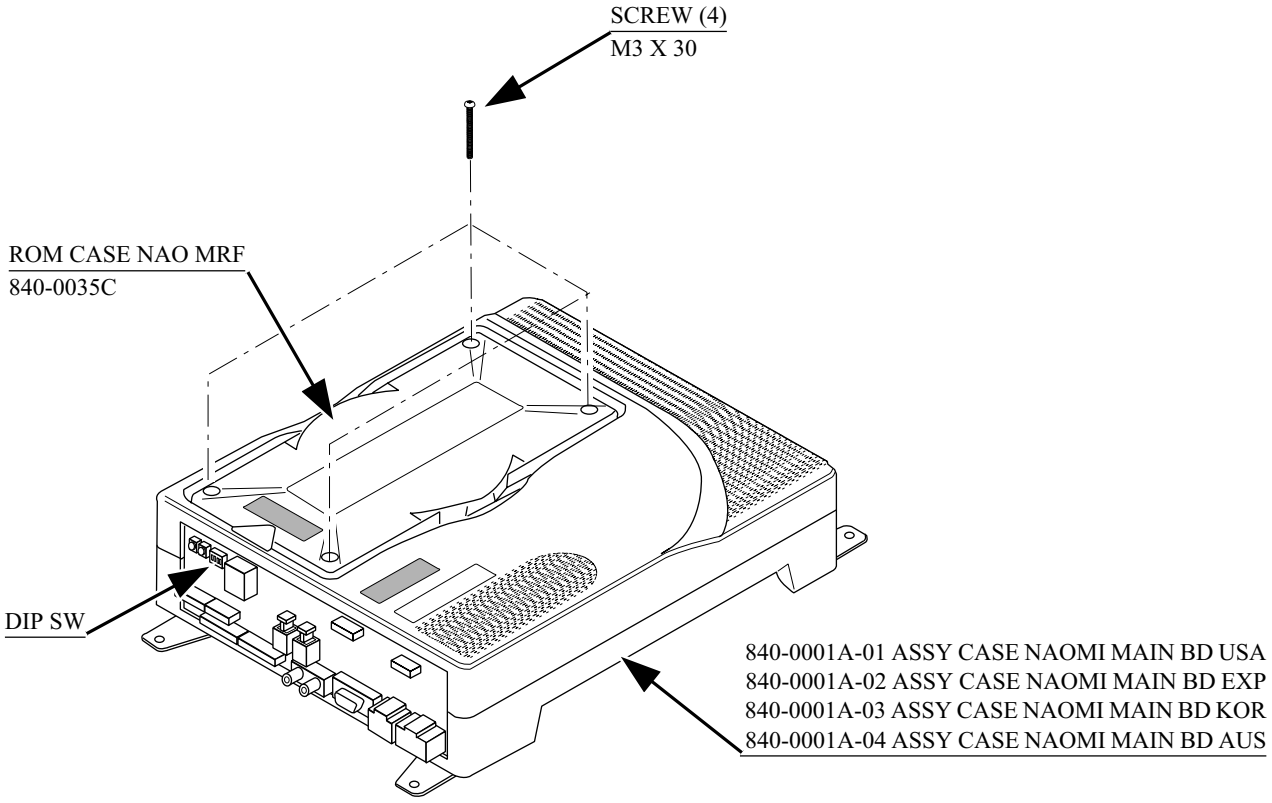

SCREW (4)
M3 X 30
ROM CASE NAO MRF
840-0035C
DIP SW
840-0001A-01 ASSY CASE NAOMI MAIN BD USA
840-0001A-02 ASSY CASE NAOMI MAIN BD EXP
840-0001A-03 ASSY CASE NAOMI MAIN BD KOR
840-0001A-04 ASSY CASE NAOMI MAIN BD AUS

FIG. 17. 2 a

DIP SW SETTING

In this product, be sure to set all of the DIP SWes to OFF.

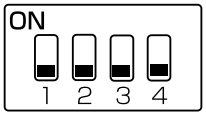
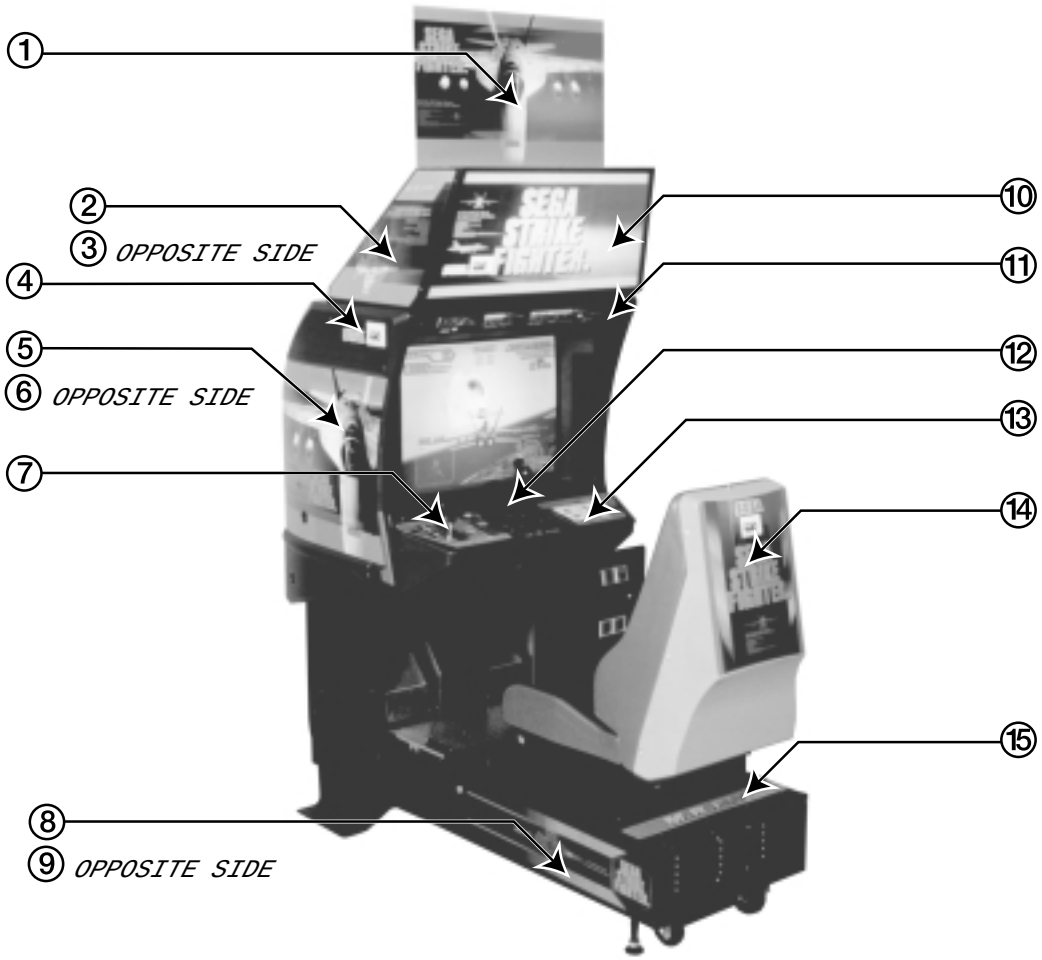


FIG. 17. 2 b

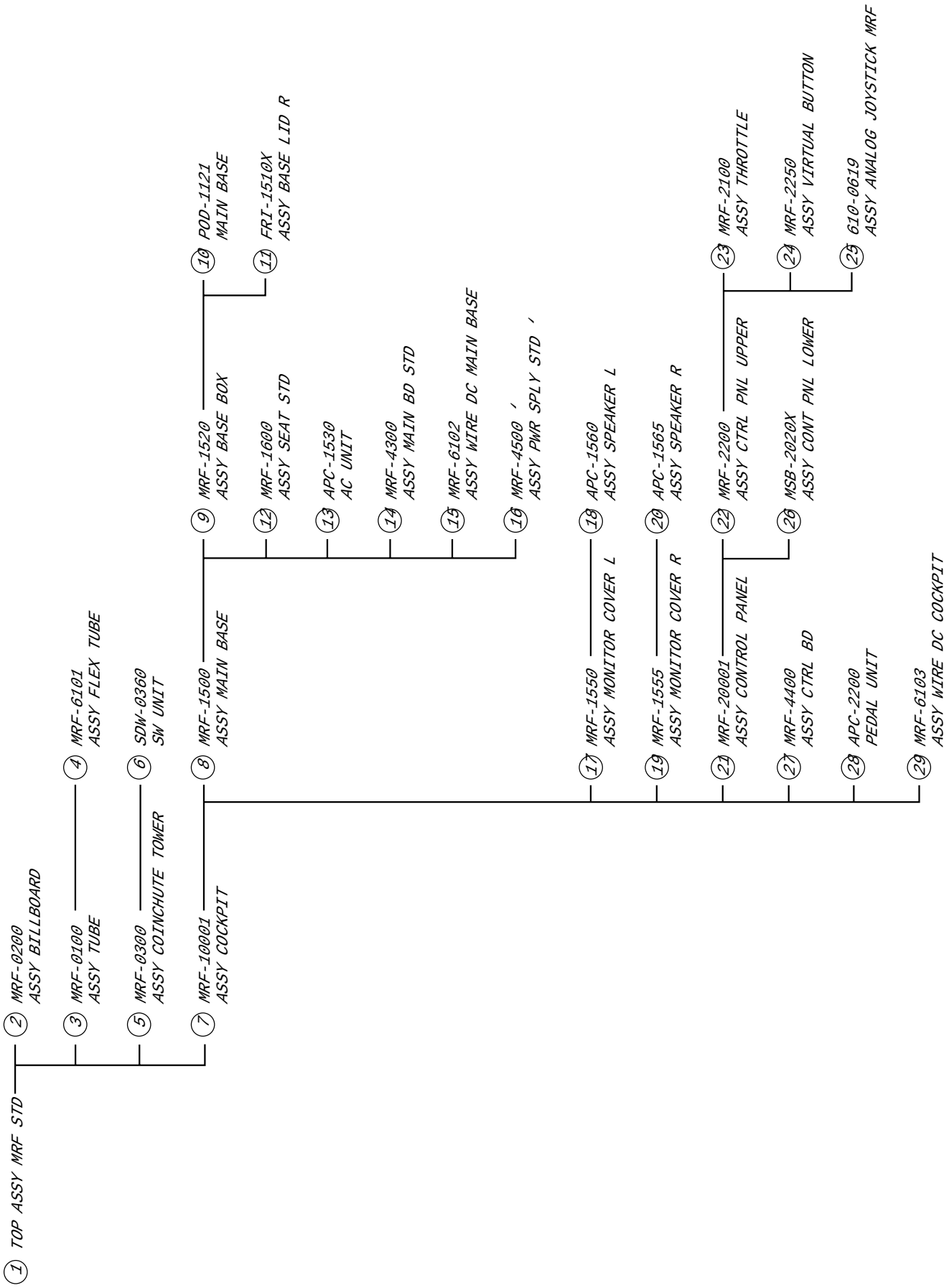
18. DESIGN RELATED PARTS

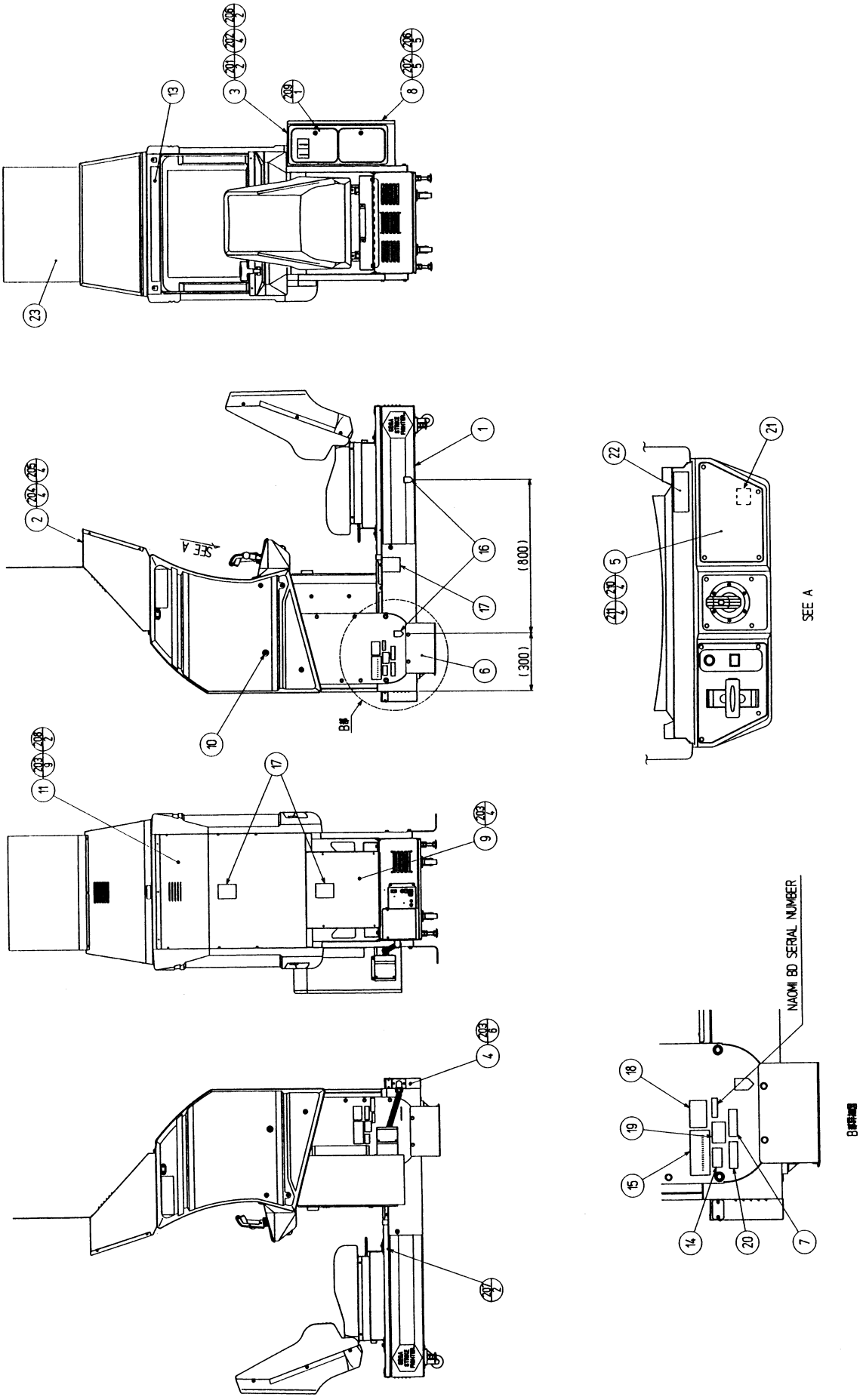
For the Warning Display stickers, refer to Section 1.



①	429-0697	DISPLAY CARD MRF STD
②	MRF-0201-B	STICKER BILLBOARD L
③	MRF-0201-C	STICKER BILLBOARD R
④	421-11328	STICKER SEGA/WOW BLOW
⑤	MRF-1551-A	STICKER SIDE L
⑥	MRF-1556-A	STICKER SIDE R
⑦	MRF-2202-01	PLATE L ENG
⑧	MRF-1521-A	STICKER BASE MRF STD L
⑨	MRF-1521-B	STICKER BASE MRF STD R
⑩	MRF-0202	BILLBOARD PLATE STD
⑪	422-0839-01	PLAY INSTR SH MRF STD ENG
⑫	MRF-2203-B	CTRL PLT CENTER
⑬	MRF-0001-01	PLATE R ENG
⑭	MRF-1601-B @	STICKER SEAT BACK COVER STD
⑮	MRF-1522	STICKER BASE LID

19. PARTS LIST


1 TOP ASSY MRF STD
2 MRF-0200 ASSY BILLBOARD
3 MRF-0100 ASSY TUBE
4 MRF-6101 ASSY FLEX TUBE
5 MRF-0300 ASSY COINCHUTE TOWER
6 SDW-0360 SW UNIT
7 MRF-10001 ASSY COCKPIT
8 MRF-1500 ASSY MAIN BASE
9 MRF-1520 ASSY BASE BOX
10 POD-1121 MAIN BASE
11 FRI-1510X ASSY BASE LID R
12 MRF-1600 ASSY SEAT STD
13 APC-1530 AC UNIT
14 MRF-4300 ASSY MAIN BD STD
15 MRF-6102 ASSY WIRE DC MAIN BASE
16 MRF-4500 ' ASSY PWR SPLY STD '
17 MRF-1550 ASSY MONITOR COVER L
18 APC-1560 ASSY SPEAKER L
19 MRF-1555 ASSY MONITOR COVER R
20 APC-1565 ASSY SPEAKER R
21 MRF-20001 ASSY CONTROL PANEL
22 MRF-2200 ASSY CTRL PNL UPPER
23 MRF-2100 ASSY THROTTLE
24 MRF-2250 ASSY VIRTUAL BUTTON
25 610-0619 ASSY ANALOG JOYSTICK MRF
26 MSB-2020X ASSY CONT PNL LOWER
27 MRF-4400 ASSY CTRL BD
28 APC-2200 PEDAL UNIT
29 MRF-6103 ASSY WIRE DC COCKPIT


SEE A
(800)
(300)
NAOMI BD SERIAL NUMBER

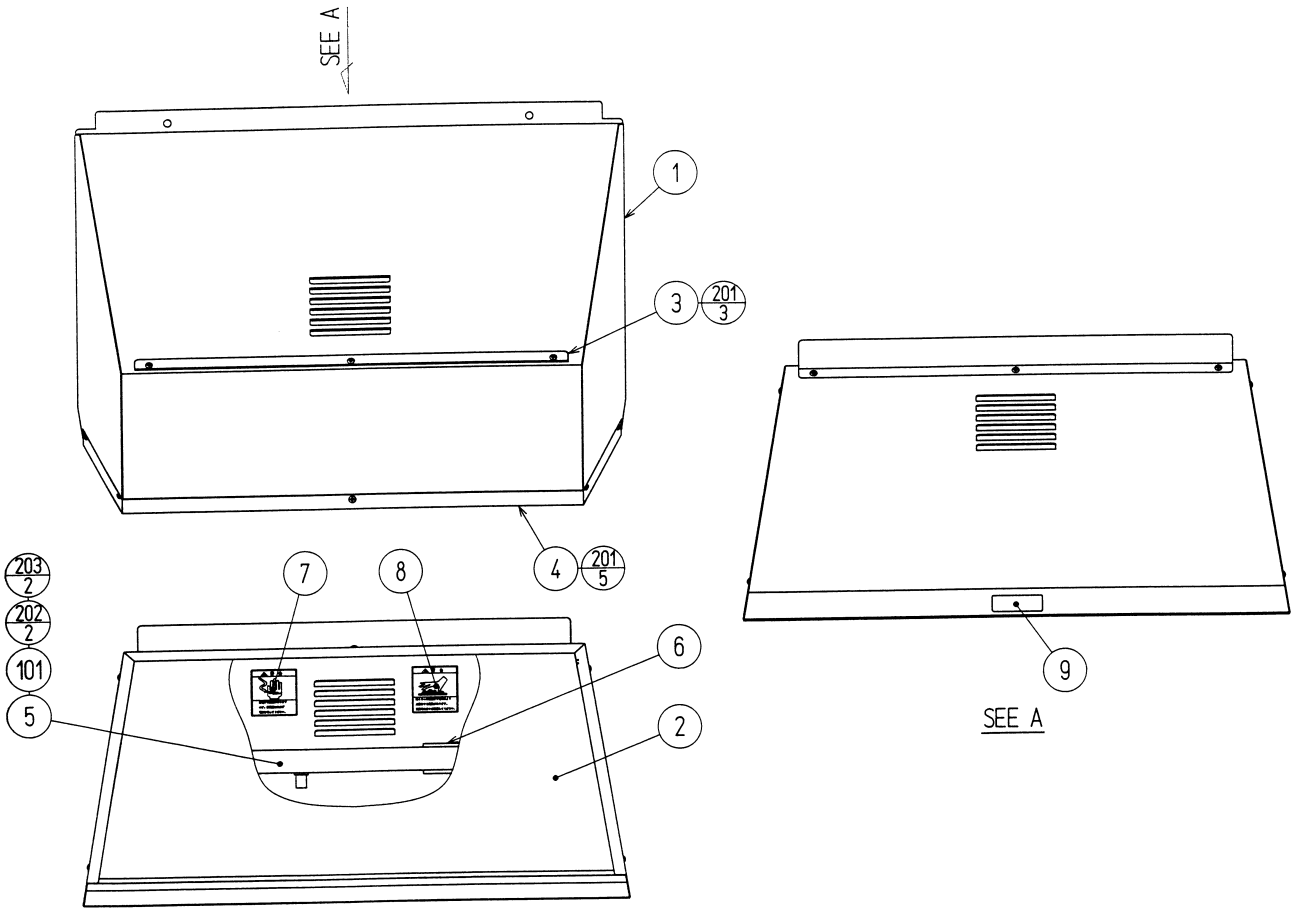
(1) TOP ASSY MRF STD (D-2/3)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MRF-10001	ASSY COCKPIT	
2	MRF-0200	ASSY BILLBOARD STD	
3	MRF-0300	ASSY COINCHUTE TOWER	
4	MRF-0100	ASSY TUBE	
5	MRF-0001-01	PLATE R ENG	
6	ECA-0001	SUPPORT BRKT	
8	SDW-0009	TOWER COVER	
9	DYN-0008	BACK LID B	
10	VOT-0007	BLIND CAP	
11	INY-0004X	BACK LID INY	
12	SGM-4515	POLY COVER 950 X 1800 X 1900	
13	422-0839-01	PLAY INSTR SH MRF STD ENG	
16	421-8885	STICKER CAUTION FORK	
17	440-WS0002XEG	STICKER W POWER OFF ENG	
21	421-7308- ~	DENOMI SH ~	
22	440-CS0186-EG	STICKER C EPILEPSY 40 ENG	
23	429-0697	DISPLAY CARD MRF STD	
201	030-000820-S	HEX BLT W/S M8 X 20	
202	068-852216	FLT WSHR 8.5-22 X 1.6	
203	000-P00408-WB	M SCR PH W/FS BLK M4 X 8	
204	030-000825-SB	HEX BLT W/S BLK M8 X 25	
205	060-F00800-0B	FLT WSHR BLK M8	
206	050-F00800	FLG NUT M8 S=12	
207	000-T00512-0B	M SCR TH BLK M5 X 12	
208	010-P00408-F	S-TITE SCR PH W/F M4 X 8	
209	008-T00412-0B	TMP PRF SCR TH BLK M4 X 12	
210	031-000414-0B	CRG BLT BLK M4 X 14	
211	050-F00400	FLG NUT M4	
401	601-6604-70	CARTON BOX 70	
402	420-6600-01	OWNERS MANUAL MRF STD ENG	
403	SGM-2675	POLYETHYLENE BAG,240 X 370	
404	220-5576	KEY MASTER FOR 220-5575	
405	SGM-4111	KEY BAG (SGB-1035X)	
406	540-0007-01	WRENCH M5 TMP SCR	
407	540-0006-01	WRENCH M4 TMP SCR	
408	420-6455-01	SERVICE MANUAL NAOMI ENG	
409	220-5484	VOL CONT B-5K OHM	
	220-5373	VOL CONT B-5K	
410	509-5974	SW MICRO TYPE SS-5	
411	509-5975	SW MICRO TYPE SS-5GL	
412	220-5737	VOL CONT B-5K	
413	600-6664-02	WIRE HARN EARTH W/LUG M6	TAIWAN
		NOT USED	OTHERS
414	600-6729	AC CABLE CONNECT TYPE 15A	TAIWAN
	600-6618	AC CABLE CONNECT TYPE FOR EXP	AC 220 ~ 240V AREA
	600-6619-01	AC CABLE CONNECT TYPE FOR UK	HONG KONG
	600-6695	AC CABLE CONNECT TYPE USA 15A	USA
415	280-5009-01	CORD CLAMP 21	
416	310-5029-F20	SUMITUBE F F 20MM	
418	090-0074	STATICIDE(300ML)	

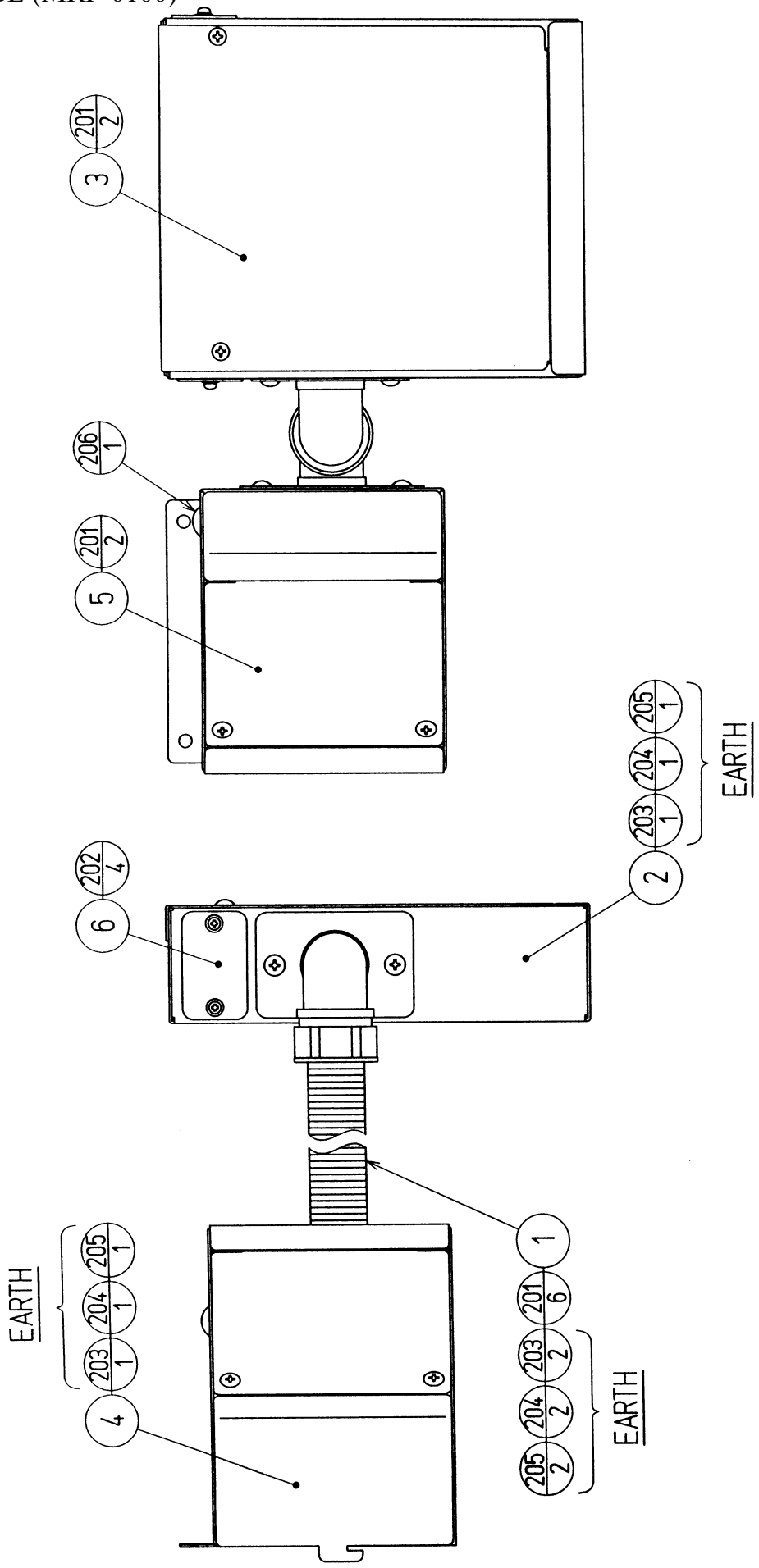
(1) TOP ASSY MRF STD (D-3/3)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
/	105-5227	SHIPPING BRKT	
/	421-6690-03	STICKER 220V	AC 220V AREA
/	421-6690-05	STICKER 240V	AC 240V AREA
/	421-6690-06	STICKER 110V	AC 110V AREA
/	421-6690-01	STICKER 120V	AC 120V AREA
/	421-6119-91	STICKER FCC	USA
/	421-6120-92	STICKER SEGA USA	

(2) ASSY BILLBOARD (MRF-0200)



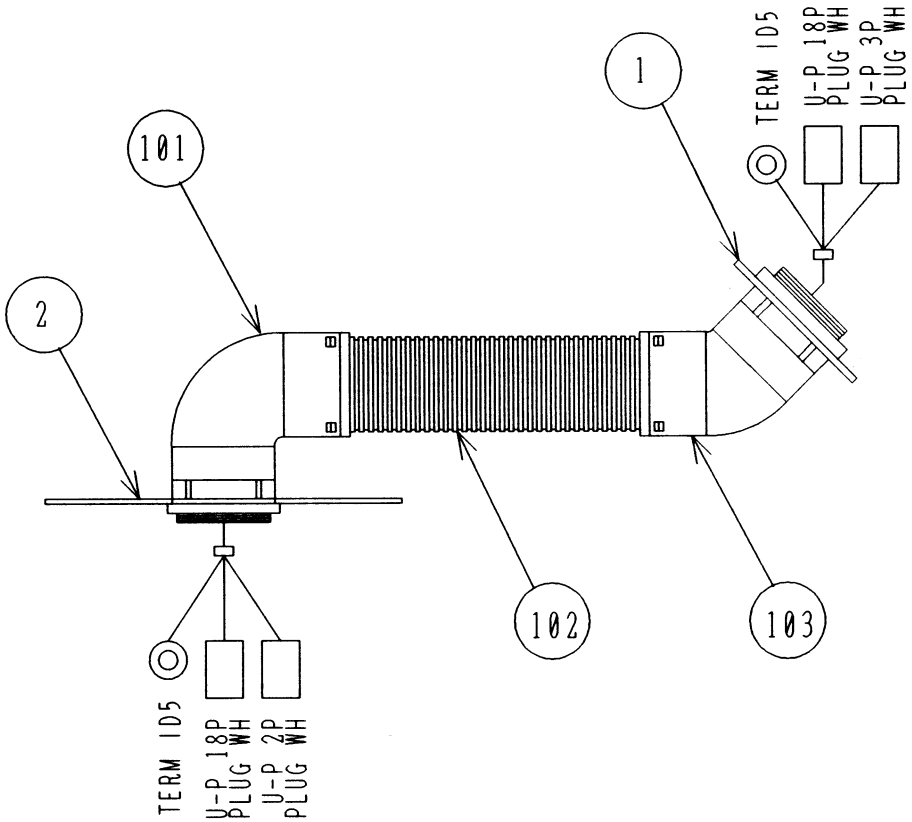
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MRF-0201	BILLBOARD BOX	
2	MRF-0202	BILLBOARD PLATE STD	
3	MRF-0203	POP BRKT	
4	MRF-0204	BILLBOARD SASH	
5	253-5457	FL HOLDER	OTHERS
		Locally supplied.	USA
6	421-7501-17	STICKER FL 20W	OTHERS
		Locally supplied.	USA
7	440-WS0002XEG	STICKER W POWER OFF ENG	
8	440-WS0012XEG	STICKER W HIGH TEMP ENG	
101	390-6659-20EX	ASSY FL20W EX W/CONN HIGH S CE	OTHERS
		Locally supplied.	USA
102	280-5009-01	CORD CLAMP 21	
201	000-T00408-0B	M SCR TH BLK M4 X 8	
202	000-P00430-S	M SCR PH W/S M4 X 30	OTHERS
		Locally supplied.	USA
203	068-441616	FLT WSHR 4.4-16 X 1.6	OTHERS
		Locally supplied.	USA
301	MRF-61018	WH FL BILLBOARD	


3
201
2
206
1
5
201
2
2
203
1
204
1
205
1
EARTH
6
202
4
1
201
6
203
2
204
2
205
2
EARTH
4
203
1
204
1
205
1
EARTH

③ ASSY TUBE (MRF-0100) (D-2/2)

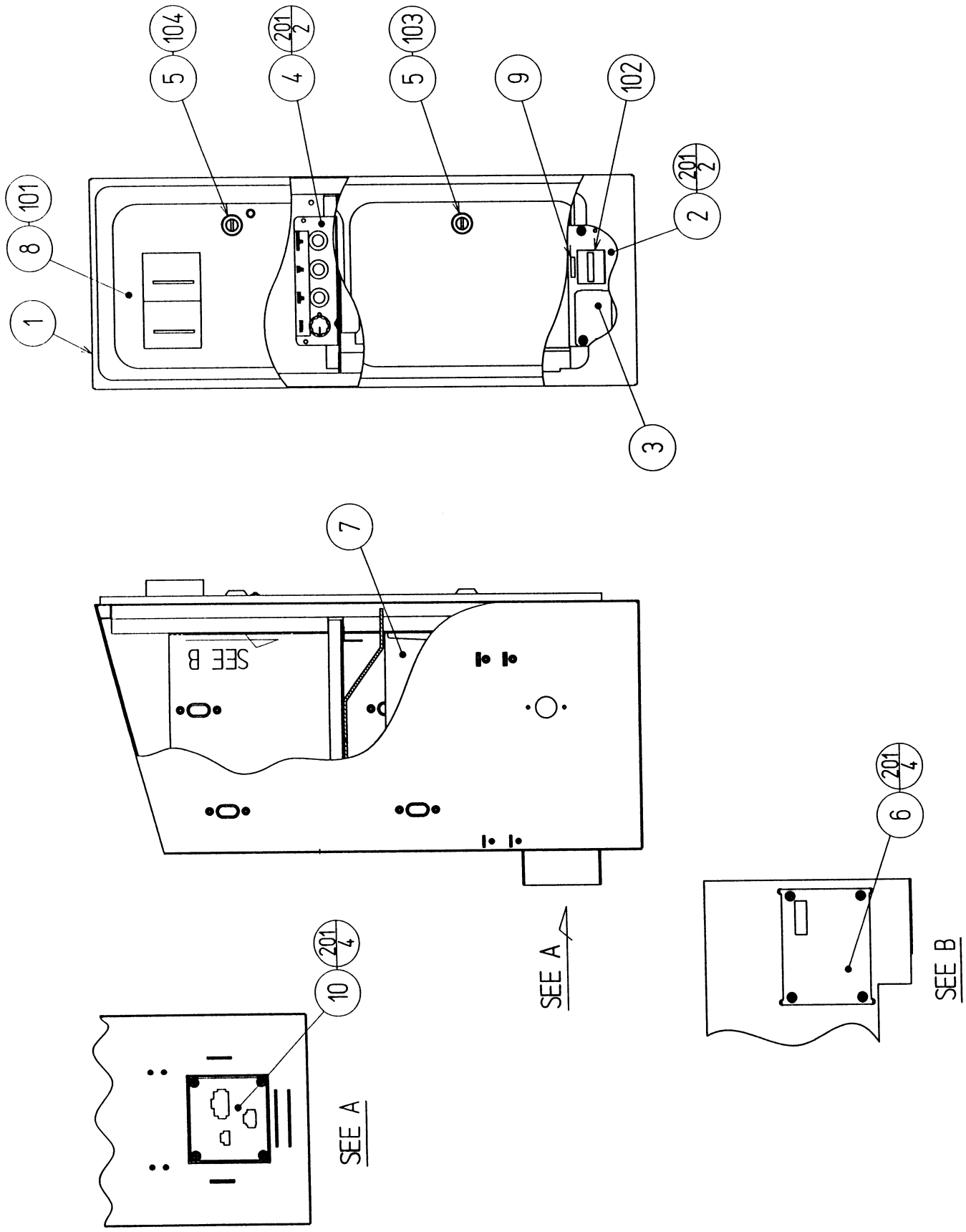
ITEM NO.	PART NO.	DESCRIPTION
1	MRF-6101	ASSY FLEX TUBE
2	ECA-0003	AC COVER
3	ECA-0004	AC LID
4	ECA-0005	WIRE COVER CC
5	ECA-0008	WIRE COVER LID
6	ECA-0010	HOLE LID
201	000-P00408-WB	M SCR PH W/FS BLK M4 X 8
202	000-P00308-WB	M SCR PH W/FS BLK M3 X 8
203	050-H00400	HEX NUT M4
204	060-S00400	SPR WSHR M4
205	060-F00400	FLT WSHR M4
206	000-T00616-0B	M SCR TH BLK M6 X 16
301	600-6972-0200	WIRE HARN EARTH ID5 0200MM
302	ECA-60009	WIRE HARN EARTH W.COVER CC

④ ASSY FLEX TUBE (MRF-6101)



ITEM NO.	PART NO.	DESCRIPTION
1	ECA-0006	TUBE PLATE A
2	ECA-0007	TUBE PLATE B
101	310-5053-22	CONN L 22
102	310-5050-220030	FLEX TUBE 22-0030CM
103	310-5384-22	CONN 45DEG. 22
104	601-0460	PLASTIC TIE BELT 100MM
301	APC-61056	WIRE HARN TOWER TOP
302	600-6972-0700	WIRE HARN EARTH ID5 0700MM

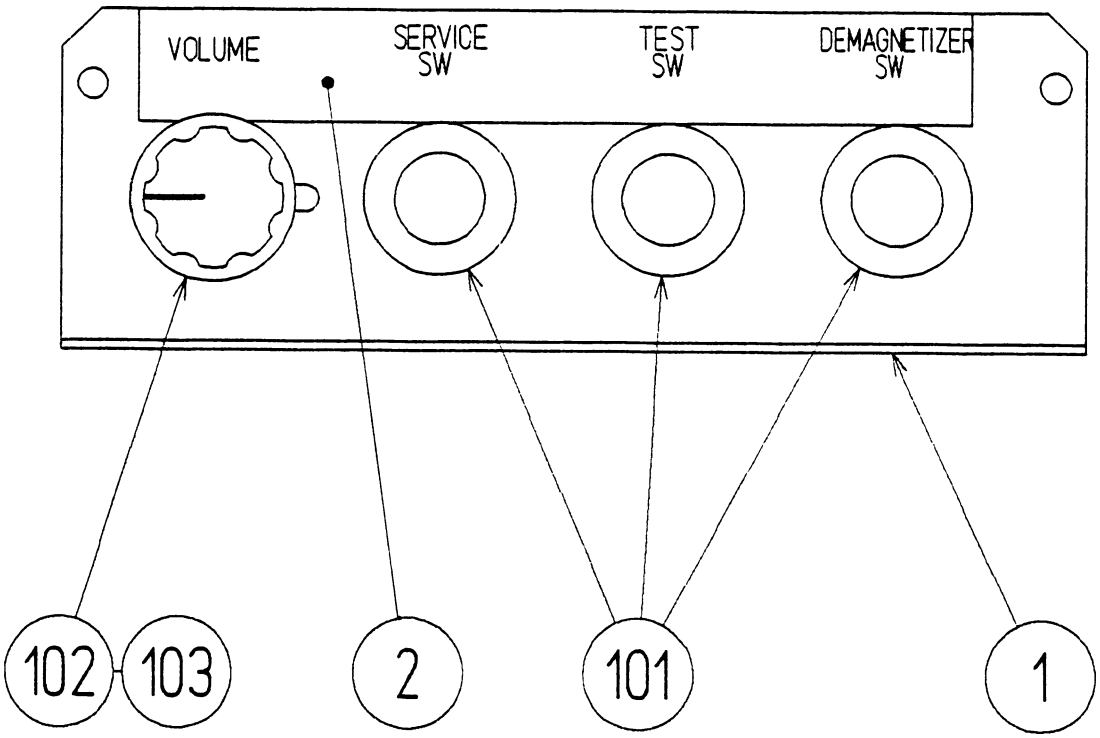
(5) ASSY COINCHUTE TOWER (MRF-0300) (D-1/2)



⑤ ASSY COINCHUTE TOWER (MRF-0300) (D-2/2)

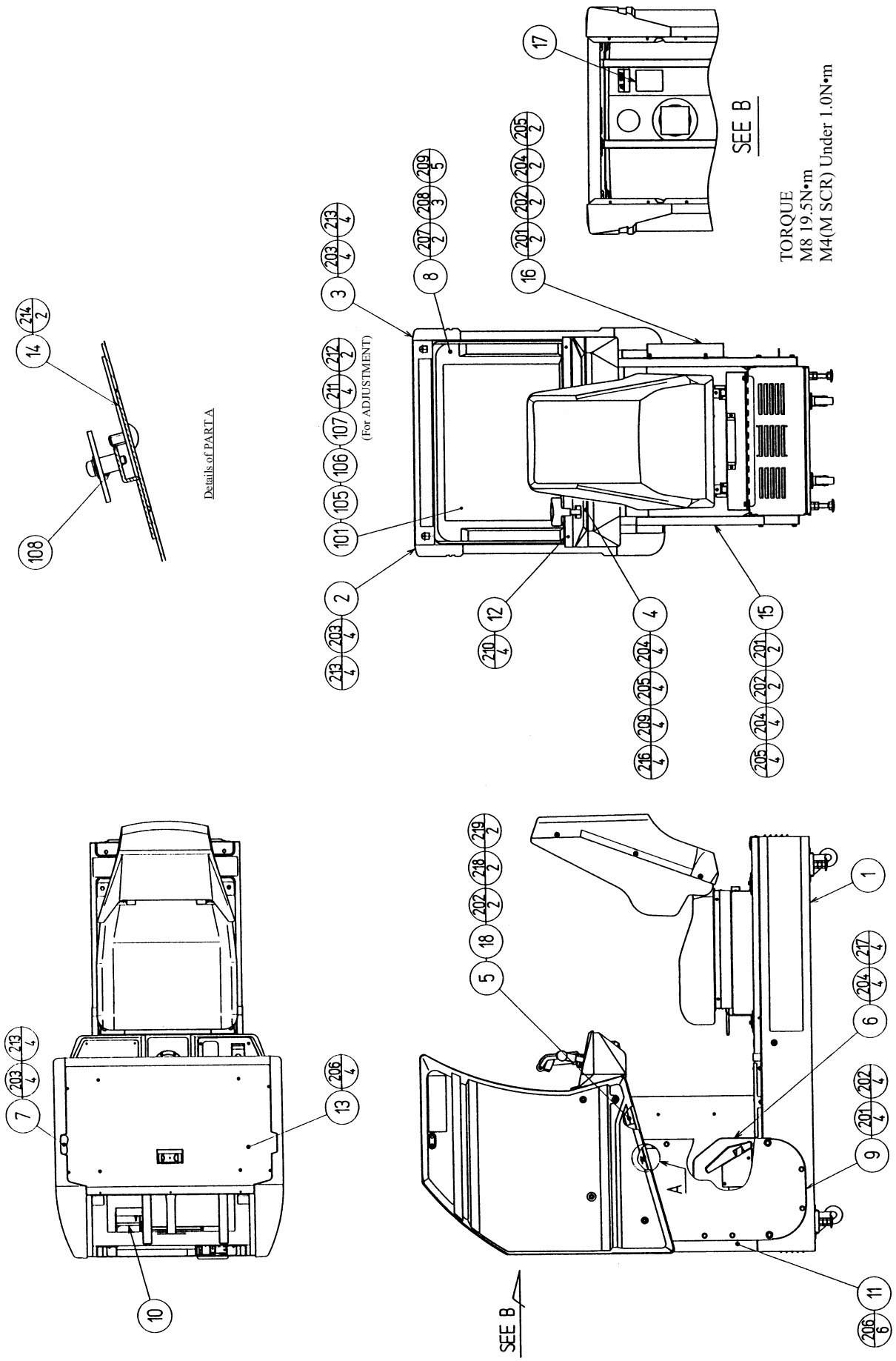
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	APC-0301X	COINCHUTE TOWER	
2	DRT-0301X	COIN METER BRKT	
3	APC-0302	METER HOLE LID	OTHERS
		Locally supplied.	USA
4	SDW-0360	SW UNIT	
5	DP-1167	TNG LKG	OTHERS
		Locally supplied.	USA
6	105-5171	CHUTE PLATE SINGLE	OTHERS
	105-5172	CHUTE PLATE DOUBLE	USA
7	253-5366	CASH BOX	
8	421-7501-02	STICKER 6.3V 0.15A	OTHERS
		Locally supplied.	USA
9	421-6591-01	STICKER COIN METER	
10	MRF-0301	CONN PNL TOWER	
101	220-5237-92- ~	ASSY C.C 2DR ~	OTHERS
	220-5482-91- ~	ASSY C.C 2DR ~	HONG KONG,KOREA,TAIWAN
		Locally supplied.	USA
102	220-5643-01	MAG CNTR DC5V 6P WH MZ-674-D04	
103	220-5574	CAM LOCK W/KEYS	OTHERS
		Locally supplied.	USA
104	220-5575	CAM LOCK MASTER W/O KEY	OTHERS
		Locally supplied.	USA
105	601-0460	PLASTIC TIE BELT 100 MM	
106	280-5275-SR10	CORD CLAMP SR10	
107	280-5009-01	CORD CLAMP 21	
108	310-5029-F20	SUMITUBE F F 20MM	OTHERS
		Locally supplied.	USA
109	601-5962-045	BUSH 3.2T	
201	000-P00408-W	M SCR PH W/FS M4 X 8	
202	000-P00408-S	M SCR PH W/S M4 X 8	
203	060-F00400	FLT WSHR M4	
301	APC-61054	WIRE HARN TOWER	
302	600-6455-02	WIRE HARN C.C DOOR SINGLE	OTHERS
		Locally supplied.	USA
303	600-6972-0150	WIRE HARN EARTH ID5 0150MM	
304	600-7076-073	WIRE HARN EARTH COIN CHUTE	
/	220-5643-02	MAG CNTR DC5V 6P YE MZ-674-D05	USA

⑥ SW UNIT (SDW-0360)



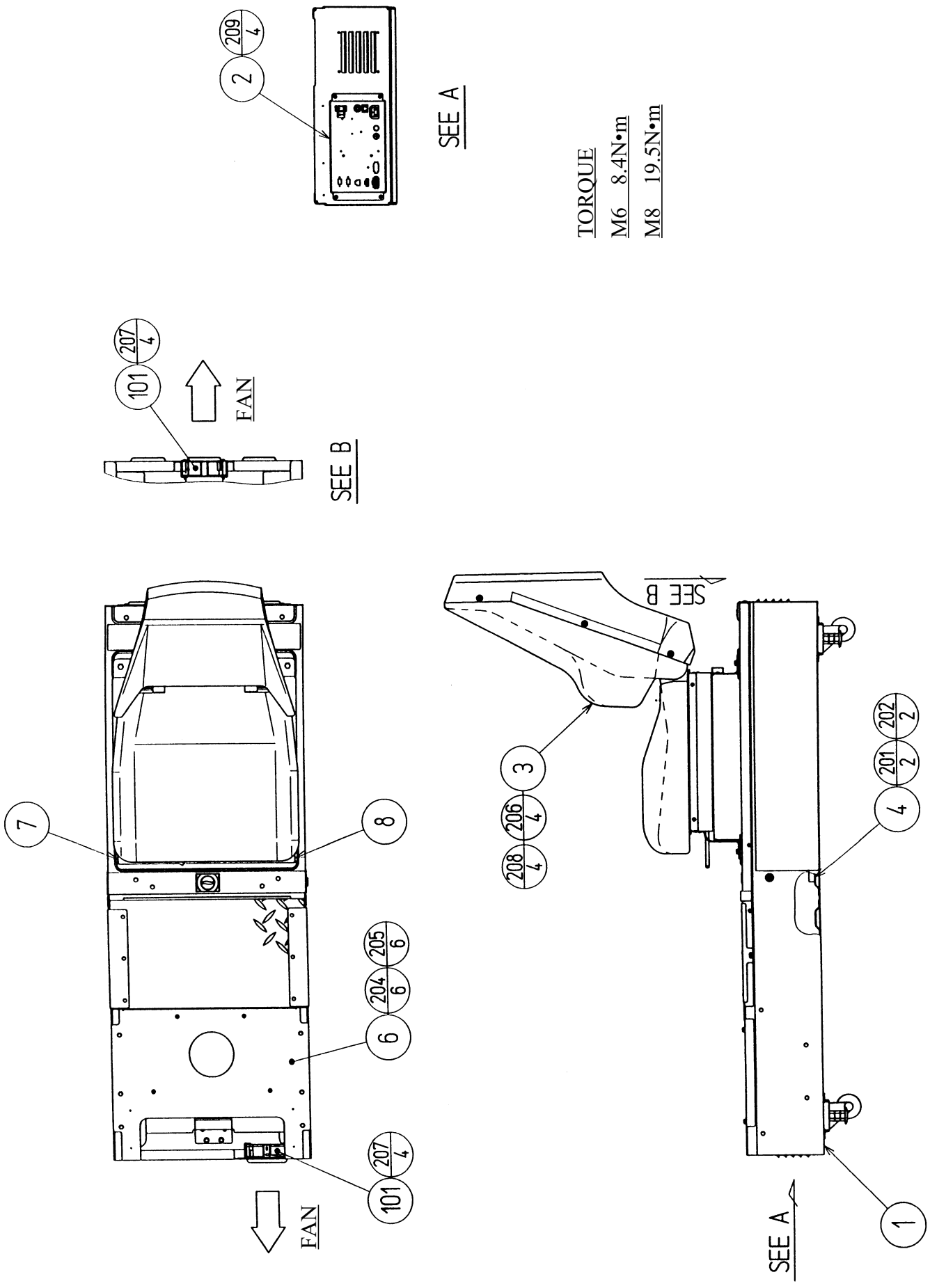
ITEM NO.	PART NO.	DESCRIPTION
1	KR-1060X	SW BRACKET
2	421-6481	STICKER SW
101	509-5028	SW PB 1M
102	220-5179	VOL CONT B-5K OHM
103	601-0042	KNOB 22MM
104	310-5029-D20	SUMITUBE F D 20MM
105	601-0460	PLASTIC TIE BELT 100MM
301	600-6373-53	WIRE HARN TEST&SERVICE LEFT
302	600-6373-55	WIRE HARN VOL. LEFT

⑦ ASSY COCKPIT (MRF-10001) (D-1/2)



(7) ASSY COCKPIT (MRF-10001) (D-2/2)

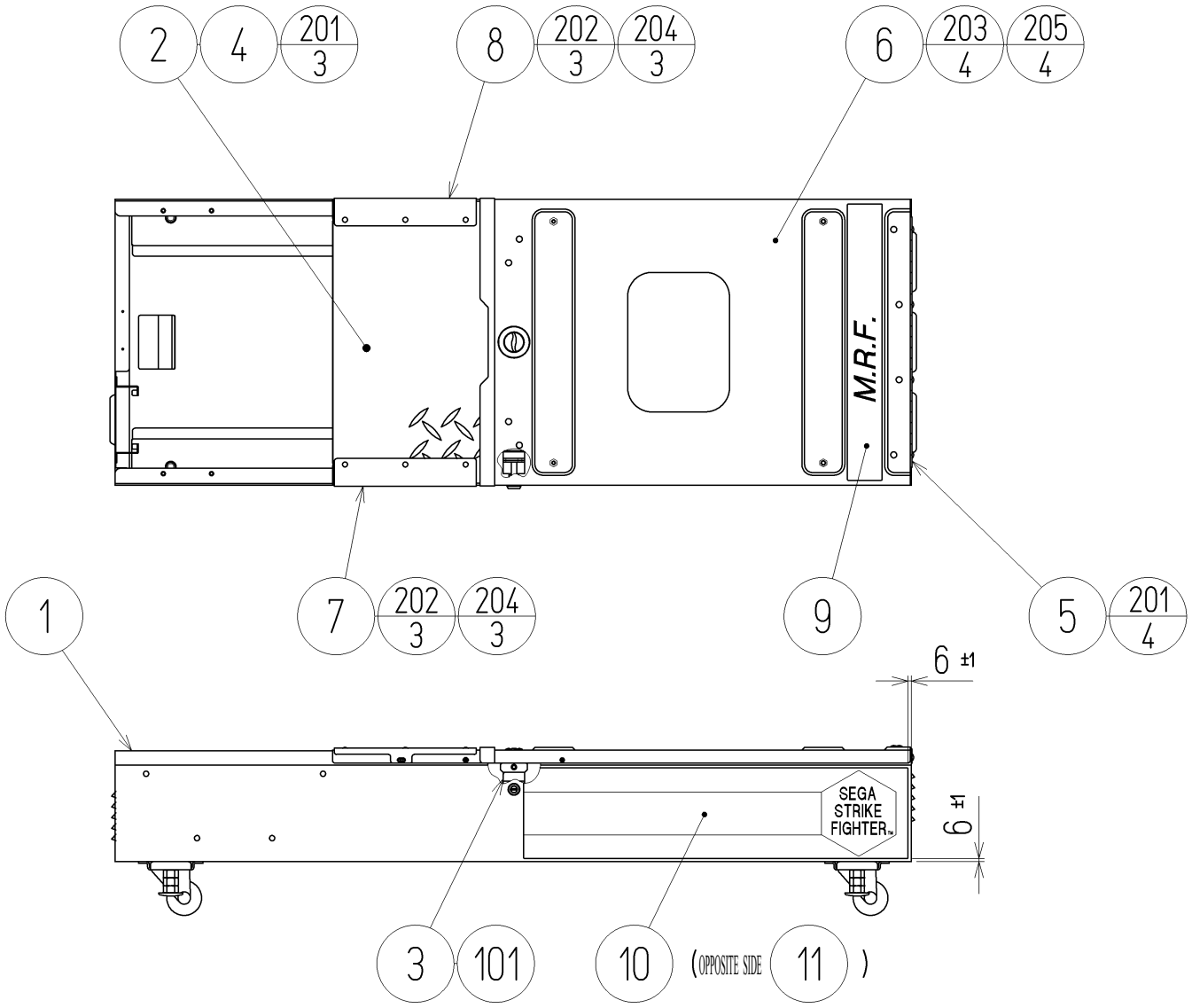
ITEM NO.	PART NO.	DESCRIPTION
1	MRF-1500	ASSY MAIN BASE
2	MRF-1550	ASSY MONITOR COVER L
3	MRF-1555	ASSY MONITOR COVER R
4	MRF-20001	ASSY CTRL PNL STD
5	MRF-4400	ASSY CTRL BD
6	APC-2200	PEDAL UNIT
7	POD-1021	MONITOR SUPPORT
8	POD-1022	MONITOR MASK
9	POD-1023	MONITOR STAND
10	POD-1025	CUSHION SPONGE
11	SPG-1007X	WIRE COVER BOX
12	GWS-1001	MASK HOLDER
13	SPG-1008X	ROOF LID
14	INY-1015	CRT ADJUST PANEL
15	APC-1088	SIDE PNL L
16	APC-1089	SIDE PNL R
17	440-DS0013XEG	STICKER D MONITOR ENG
18	MRF-1015	CTRL BD INGRESS COVER
101	200-5927	ASSY CLR DSPL 29TYPE 31K 2934
102	280-5009-01	CORD CLAMP 21
103	280-5275-SR10	CORD CLAMP SR10
104	601-0460	PLASTIC TIE BELT 100 MM
105	280-5112	BUSH FOR TV
106	280-5113	COLLAR FOR TV
107	280-5114	SPACER 6.4-25 X 2
108	280-5185-6	SPACER TUBE L=6
109	601-6231-C100	EDGING NEW TYPE
201	030-000850-SB	HEX BLT W/S BLK M8 X 50
202	068-852216-0B	FLT WSHR BLK 8.5-22 X 1.6
203	030-000840-SB	HEX BLT W/S BLK M8 X 40
204	060-F00800-0B	FLT WSHR BLK M8
205	030-000820-SB	HEX BLT W/S BLK M8 X 20
206	000-P00408-WB	M SCR PH W/FS BLK M4 X 8
207	000-T00530-0B	M SCR TH BLK M5 X 30
208	000-T00512-0B	M SCR TH BLK M5 X 12
209	068-552016-0B	FLT WSHR BLK 5.5-20 X 1.6
210	000-F00508	M SCR FH M5 X X8
211	050-F00600	FLG NUT M6
212	000-P00312-WB	M SCR PH W/FS BLK M3 X 12
213	DYN-1019	FLT WASHER M8
214	000-T00408-0B	M SCR TH BLK M4 X 8
216	008-T00516-0B	TMP PRF SCR TH BLK M5 X 16
217	030-000830-SB	HEX BLT W/S BLK M8 X 30
218	FAS-290017	HEX SKT SCR BH BLK M8 X 30
219	060-S00800-0B	SPR WSHR BLK M8
301	MRF-6103	ASSY WIRE DC COCKPIT
302	MRF-61003	WH AC EXT U
303	600-6972-0300	WIRE HARN EARTH ID5 0300MM
304	600-6972-1250	WIRE HARN EARTH ID5 1250MM


2
209
4
SEE A
TORQUE
M6 8.4N•m
M8 19.5N•m
101
207
4
FAN
SEE B
7
8
205
6
204
6
6
101
207
4
FAN
SEE B
3
206
4
208
4
202
2
201
2
4
SEE A
1

(8) ASSY MAIN BASE (MRF-1500) (D-2/2)

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MRF-1520	ASSY BASE BOX	
2	APC-1530	AC UNIT	
3	MRF-1600	ASSY SEAT STD	
4	MRF-4300	ASSY MAIN BD STD	
6	APC-1502X	FOOT BASE	
7	RAL-2007	RUBBER HOLDER R TWIN	
8	RAL-2008	RUBBER HOLDER L TWIN	
9	MRF-4500	ASSY PWR SPLY STD	AC 100 ~ 120V AREA
	MRF-4500-01	ASSY PWR SPLY STD EXPORT	AC 220 ~ 240V AREA
101	260-0011-02	AXIAL FLOW FAN AC100V 50-60HZ	
102	280-5009-01	CORD CLAMP 21	
103	280-5275-SR10	CORD CLAMP SR10	
104	280-5169	CORD CLAMP TL-20S	
201	000-P00425-W	M SCR PH W/FS M4 X 25	
202	068-441616	FLT WSHR 4.4-16 X 1.6	
203	050-F00500	FLG NUT M5	
204	030-000616-SB	HEX BLT W/S BLK M6 X 16	
205	060-F00600-0B	FLT WSHR BLK M6	
206	060-F00800-0B	FLT WSHR BLK M8	
207	000-P00350-W	M SCR PH W/FS M3 X 50	
208	030-000825-SB	HEX BLT W/S BLK M8 X 25	
209	000-P00408-WB	M SCR PH W/FS BLK M4 X 8	
301	MRF-6102	ASSY WIRE DC MAIN BASE	
303	HRT-60002	WH AC100V EXT	
304	600-6972-0150	WIRE HARN EARTH ID5 0150MM	

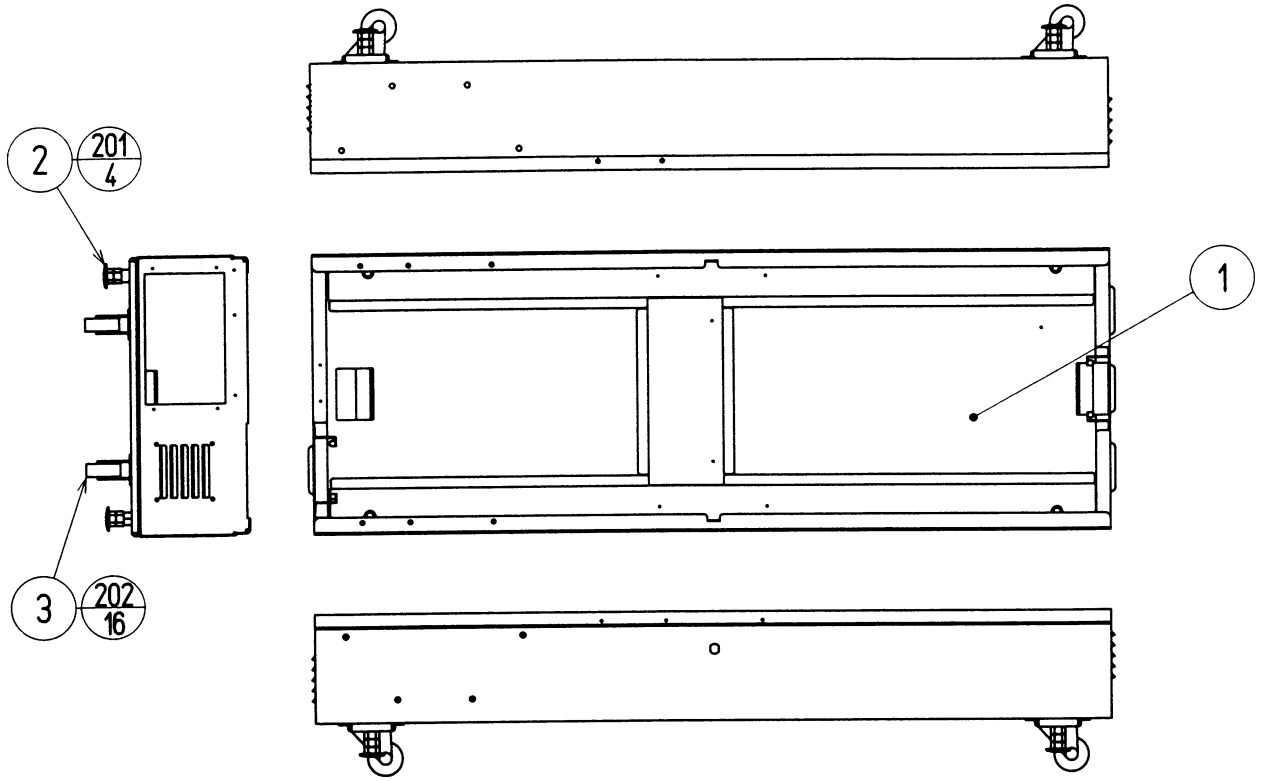
(9) ASSY BASE BOX (MRF-1520) (D-1/2)



(9) ASSY BASE BOX (MRF-1520) (D-2/2)

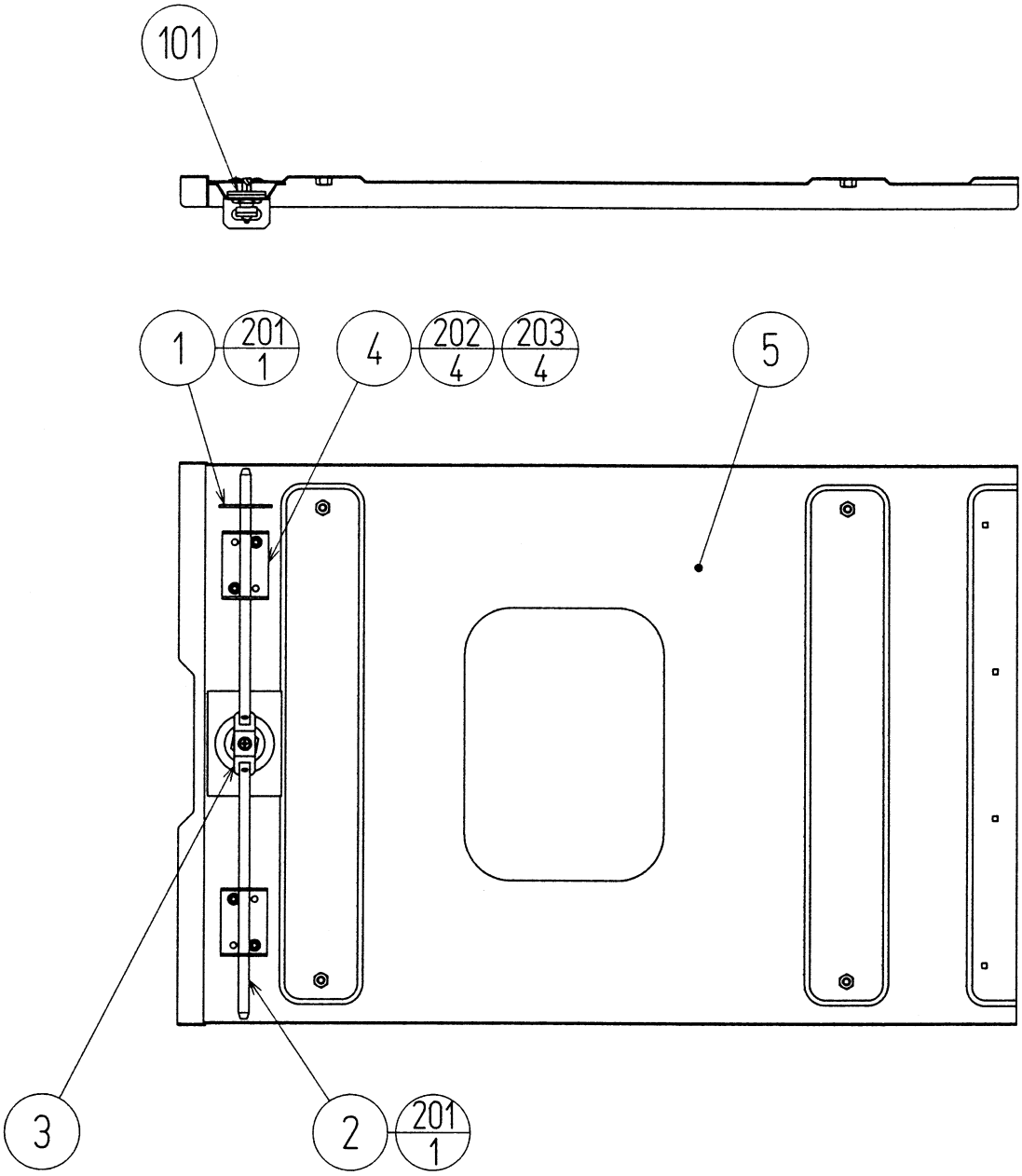
ITEM NO.	PART NO.	DESCRIPTION
1	POD-1121	MAIN BASE
2	APC-1521	BASE LID F
3	DYN-2004	LOCK TNG
4	APC-1522X	FLOOR MAT
5	DYN-2006	HINGE 480
6	FRI-1510X	ASSY BASE LID R
7	DYN-2007X	LID EDGE L
8	DYN-2009X	LID EDGE R
9	MRF-1522	STICKER BASE LID
10	MRF-1521-A	STICKER BASE MRF STD L
11	MRF-1521-B	STICKER BASE MRF STD R
101	220-5575	CAM LOCK MASTER W/O KEY
201	000-T00512-0B	M SCR TH BLK M5 X 12
202	031-000414-0C	CRG BLT CRM M4 X 14
203	031-000514-0B	CRG BLT BLK M5 X 14
204	050-F00400	FLG NUT M4
205	050-F00500	FLG NUT M5

(10) MAIN BASE (POD-1121)



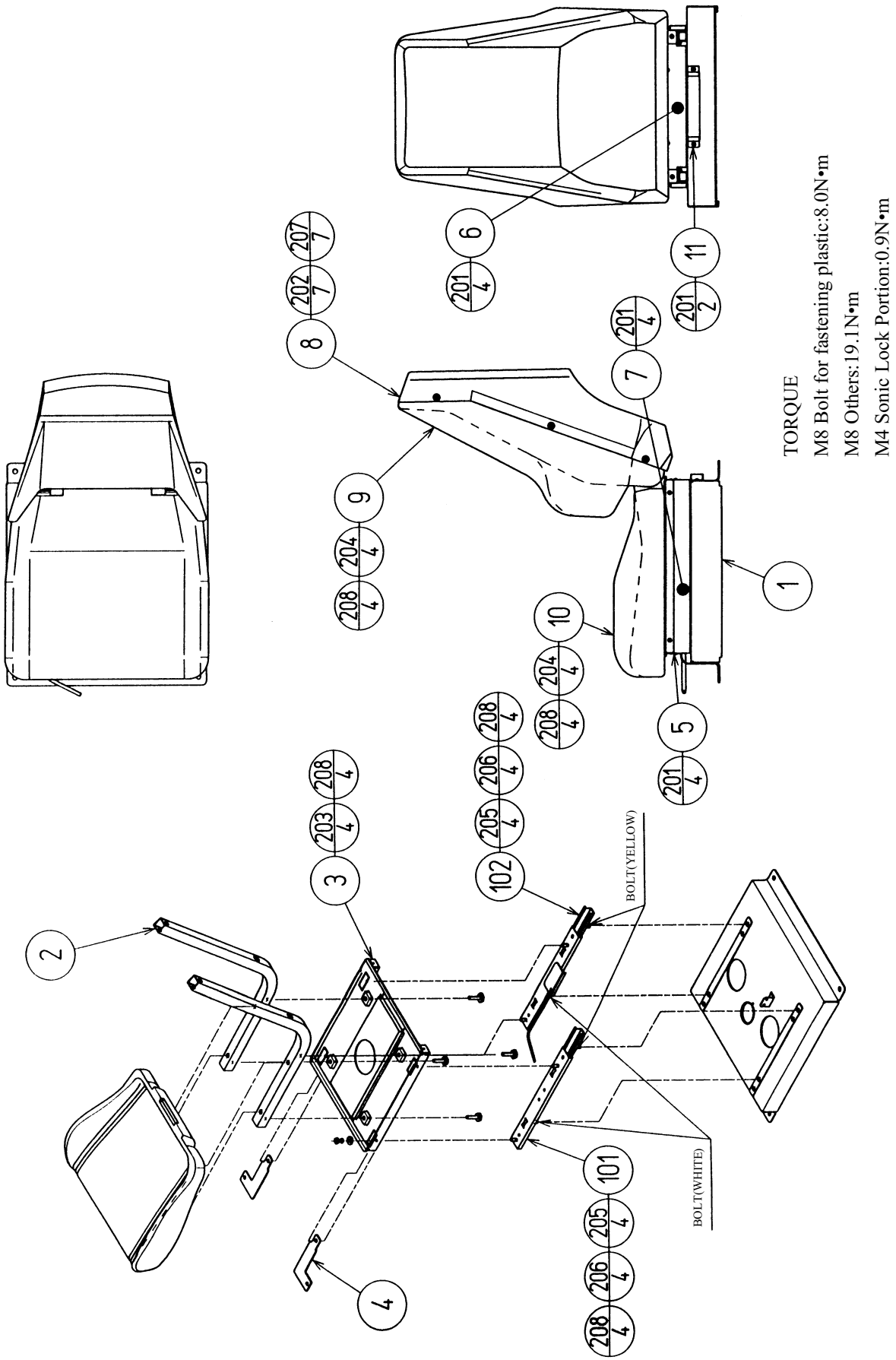
ITEM NO.	PART NO.	DESCRIPTION
1	FRI-1501-A	MAIN BASE BLANK
2	601-5699X	LEG ADJUSTER BOLT M16Å X 5
3	601-5471	CASTER
201	050-H01600-0B	HEX NUT BLK M16
202	030-000816-S	HEX BLT W/S M8 X 16

(11) ASSY BASE LID R (FRI-1510X)



ITEM NO.	PART NO.	DESCRIPTION
1	DYN-2011	LOCK ROD A
2	DYN-2012	LOCK ROD B
3	DYN-2013	LOCK ARM
4	DYN-2014	ROD HOLDER
5	FRI-1511X	BASE LID R
101	601-7551	LOCK HANDLE
103	280-5008	CORD CLAMP 15
201	045-C02520	COT PIN 2.5 X 20
202	031-000510-0B	CRG BLT BLK M5 X 10
203	050-F00500	FLG NUT M5

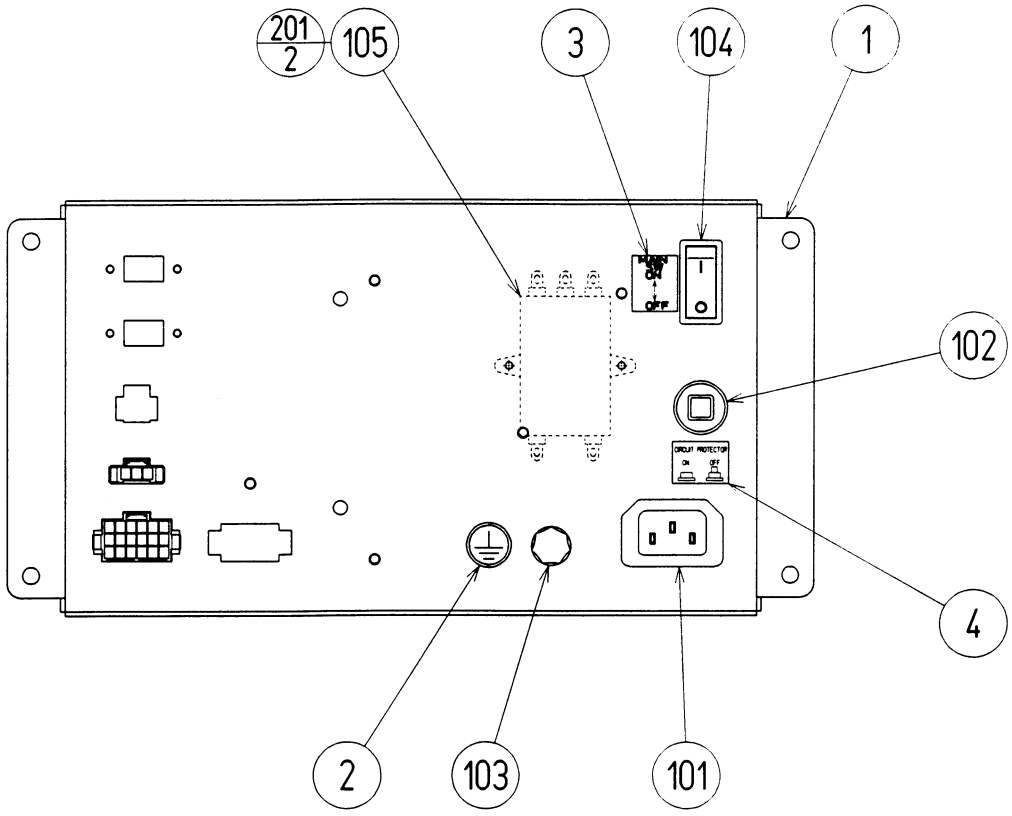
(12) ASSY SEAT STD (MRF-1600) (D-1/2)



(12) ASSY SEAT STD (MRF-1600) (D-2/2)

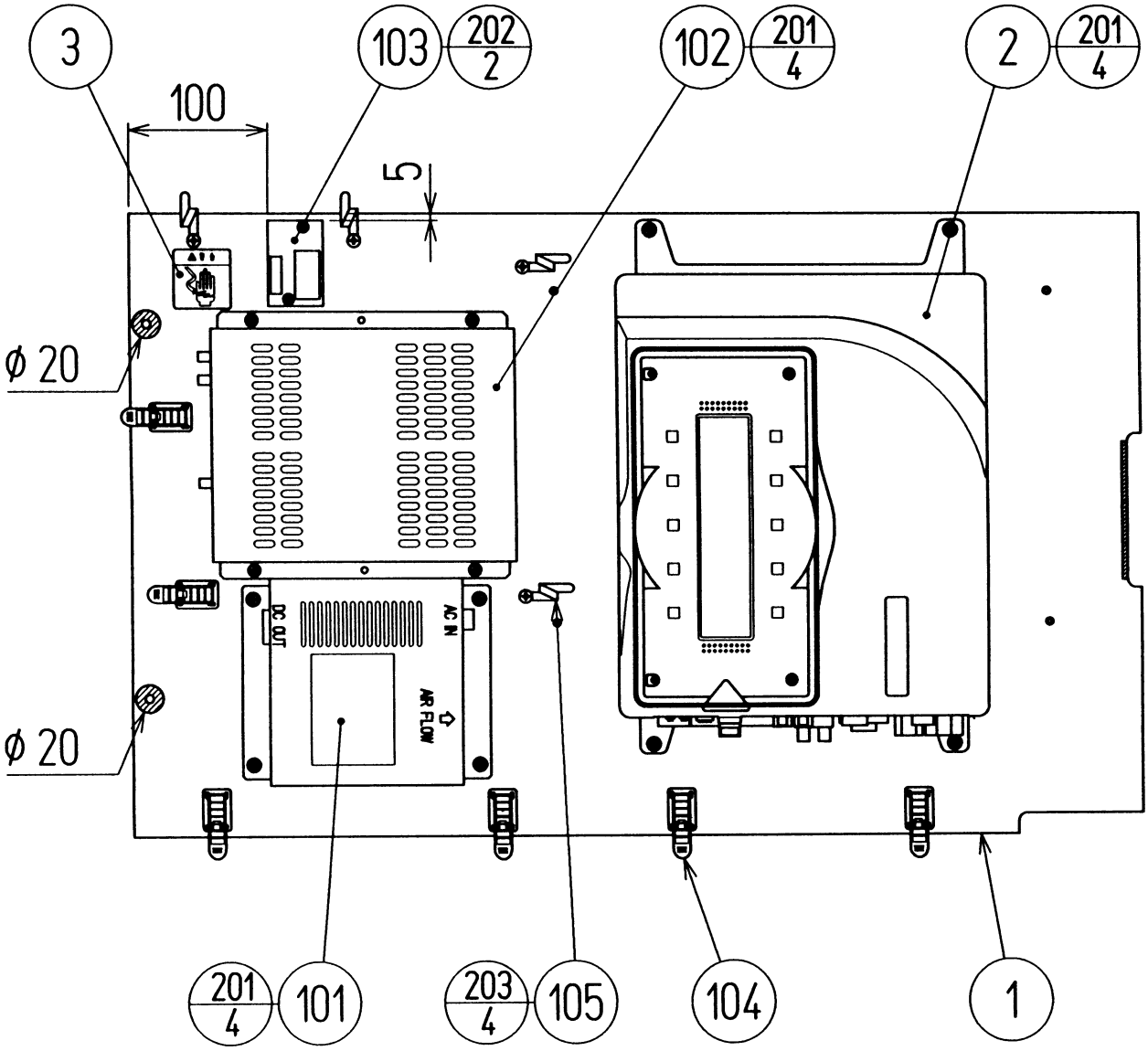
ITEM NO.	PART NO.	DESCRIPTION
1	MRF-3101	SEAT BASE
2	APC-3112	SEAT FRAME STD
3	MRF-3102	SEAT MOUNT TRAY
4	APC-3104	PROTECT RUBBER
5	APC-3105	SAFETY GUARD FRONT
6	APC-3113	SAFETY GUARD REAR STD
7	APC-3107	SAFETY GUARD SIDE
8	MRF-1601	SEAT BACK COVER STD
9	DYN-2131X	UPPER SEAT
10	DYN-2132X	LOWER SEAT
11	APC-3114	SEAT BASE REAR
101	601-9059-91	SEAT RAIL L
102	601-9060-91	SEAT RAIL R
201	000-T00408-0B	M SCR TH BLK M4 X 8
202	000-T00412-0C	M SCR TH CRM M4 X 12
203	030-000816-S	HEX BLT W/S M8 X 16
204	030-000850-S	HEX BLT W/S M8 X 50
205	050-H00800	HEX NUT M8
206	060-S00800	SPR WSHR M8
207	068-441616-0C	FLT WSHR CRM 4.4-16 X 1.6
208	068-852216	FLT WSHR 8.5-22 X 1.6

(13) AC UNIT (APC-1530)



ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	APC-1531X	AC BRKT	
2	421-8202	STICKER EARTH MARK	
3	421-6526	STICKER ON OFF	
4	421-7468-01	STICKER C.P W/PIC	
101	214-0202	AC INLET PANEL TYPE	
102	512-5046-5000	C.P 5000MA CE UL	AC 110 ~ 120V AREA
	512-5046-3000	C.P 3000MA CE UL	AC 220 ~ 240V AREA
103	280-0417	TERMINAL BINDING POST BLACK	TAIWAN
		NOT USED	OTHERS
104	509-5453-91-V-B	SW ROCKER J8 V-B	
105	270-5020	NOISE FILTER AC250V 6A	
106	601-0460	PLASTIC TIE BELT 100 MM	
107	280-5009-01	CORD CLAMP 21	
108	310-5029-G20	SUMITUBE F G 20MM	
201	010-P00306-F	S-TITE SCR PH W/F M3 X 6	
301	APC-61001	WIRE HARN APC STD HOT IN	
302	APC-61002	WIRE HARN CONN J8	
303	APC-61003	WIRE HARN N.F OUT	
304	APC-61004	WIRE HARN EARTH IN	
305	APC-61005	WIRE HARN EXT AC UNIT PANEL	
/	008-T00416-0B	TMP PRF SCR TH BLK M4 X 16	
/	050-H00400	HEX NUT M4	
/	060-S00400	SPR WSHR M4	
/	060-F00400	FLT WSHR M4	

(14) ASSY MAIN BD STD (MRF-4300) (D-1/2)



Make sure that there is no wiring, etc. in the slash mark portions.

(14) ASSY MAIN BD STD (MRF-4300) (D-2/2)

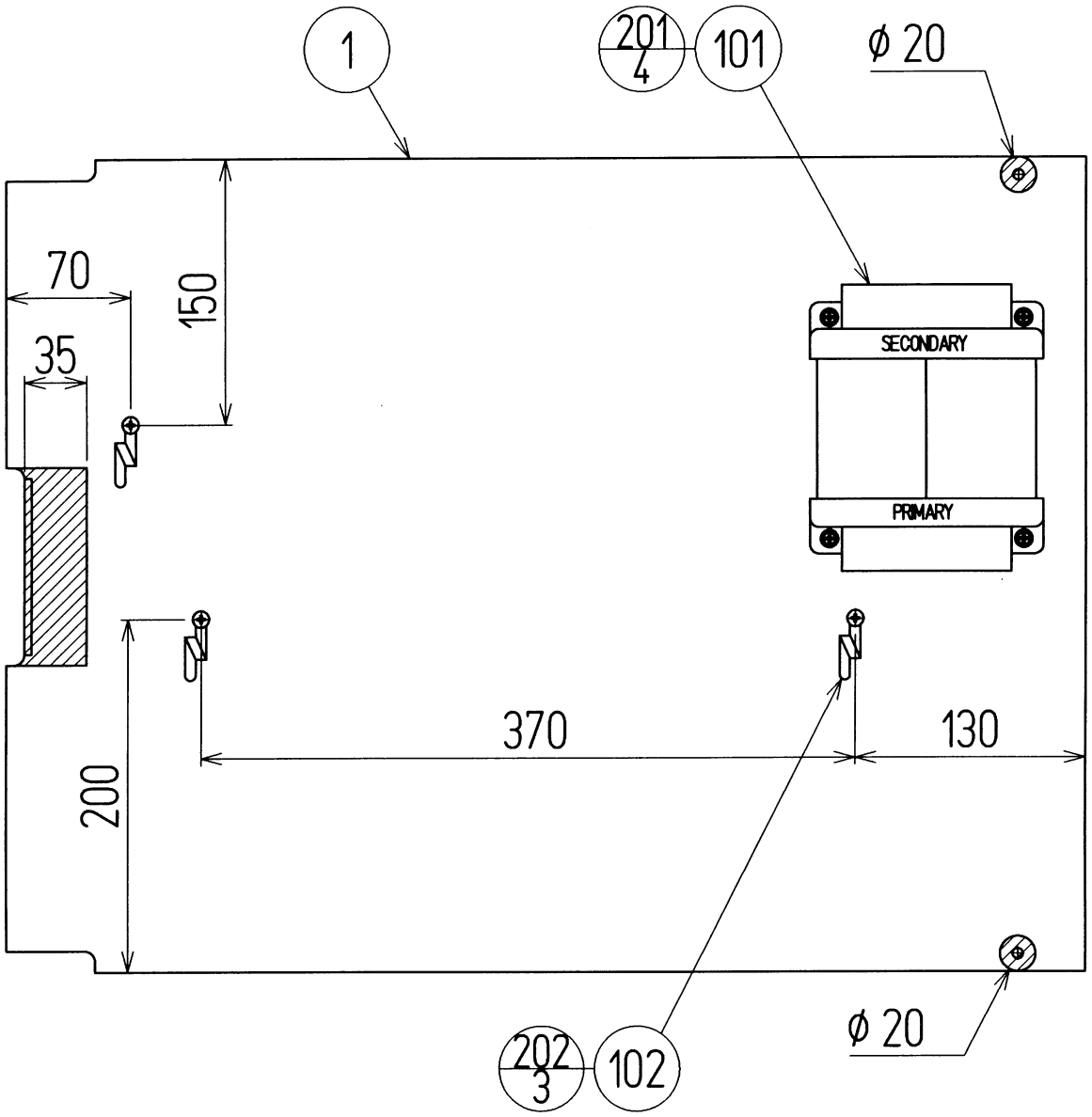
ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	POD-4401	MAIN BD BASE TWIN	
2	840-0035D-02	ASSY CASE NAO MRF EXP	OTHERS
	840-0035D-04	ASSY CASE NAO MRF AUS	AUSTRALIA
	840-0035D-03	ASSY CASE NAO MRF KOR	KOREA
	840-0035D-01	ASSY CASE NAO MRF USA	USA
3	440-WS0142-EG	STICKER W POWER OFF S ENG	
101	400-5397-01	SW REGU FOR JVS VA	
102	601-10369	STEREO PWR AMP 47	
103	838-11856CE-02	CONNECT BD W/FUSE 6.3A CE	
104	280-6600	CORD CLAMP TL-20W	
105	280-5207	HARNESS LUG CC-1005	
106	601-0460	PLASTIC TIE BELT 100 MM	
201	000-P00416-W	M SCR PH W/FS M4 X 16	
202	011-P00325	TAP SCR PH 3 X 25	
203	011-T03512	TAP SCR TH 3.5 X 12	
301	MRF-61001	WH AC OUT A	
302	MRF-61002	WH AC OUT B	
303	MRF-61019	WH AC CONN BD IN EXPORT	
304	POD-61032	WIRE HARN DC PWR	
305	POD-61033	WIRE HARN VOL	
306	POD-61034	WIRE HARN SPEAKER OUT	
307	600-7158-0100	CA AUDIO RCA TO RCA 2CH 100CM	
308	600-7159-095	WIRE HARN JVS PWR 095CM	

(15) ASSY WIRE DC MAIN BASE (MRF-6102)

ASSY WIRE DC MAIN BASE (MRF-6102) is comprised of the following wire harnesses.
An ASSY DRG. is unavailable.

ITEM NO.	PART NO.	DESCRIPTION
101	601-0460	PLASTIC TIE BELT 100 MM
301	HRT-60004	WH FRONT SPEAKER EXT
302	HRT-60005	WH DC PWR EXT
303	MRF-61004	WH VOL&COIN EXT
304	MRF-61009	WH PEDAL EXT
305	600-7009-2500	ASSY RGB CA D-SUB 15P 2500MM
306	600-7141-250	CABLE JVS TYPE A-B 250CM

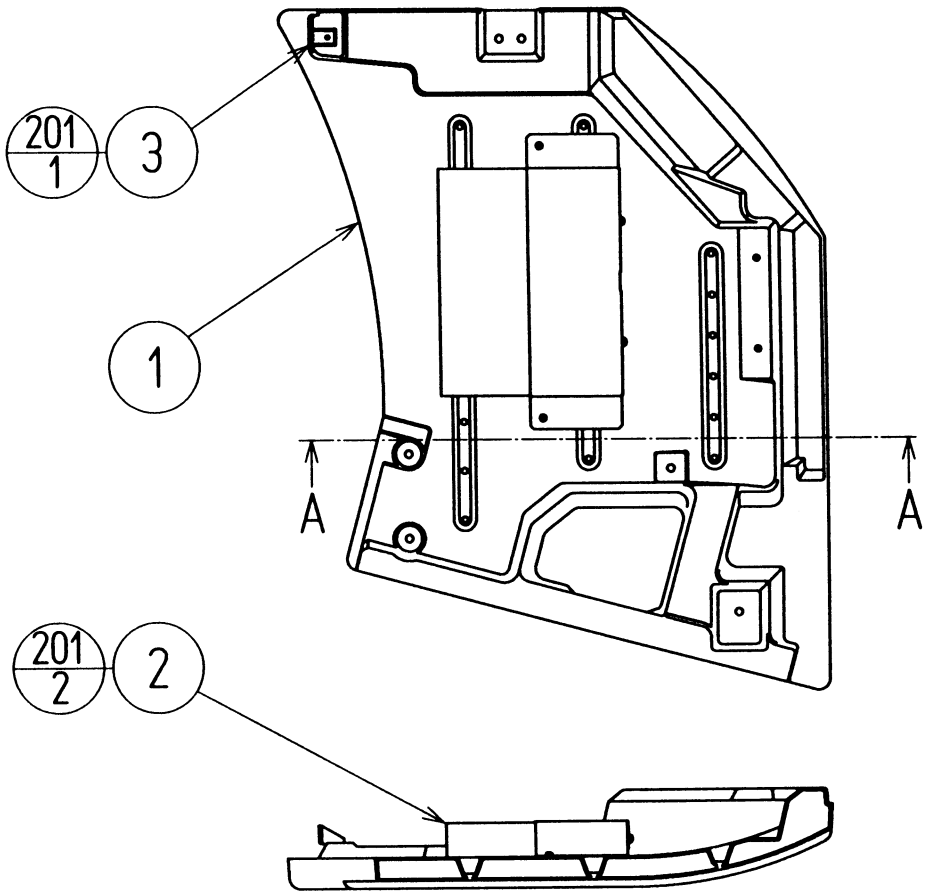
(16) ASSY PWR SPLY STD ~ (MRF-4500~)



Make sure that there is no wiring, etc. in the slash mark portions.

ITEM NO.	PART NO.	DESCRIPTION	NOTE
1	MRF-4501	PWR SPLY BASE STD	
101	560-5450-H	XFMR 100-120V 100V 5.5A	AC 110 ~ 120V AREA
	560-5451-H	XFMR 220-240V 100V 5.5A CE	AC 220 ~ 240V AREA
102	280-5207	HARNESS LUG CC-1005	
201	000-P00416-W	M SCR PH W/FS M4 X 16	
202	011-T03512	TAP SCR TH 3.5 X 12	
301	MRF-61016	WH AC EXT EXPORT	

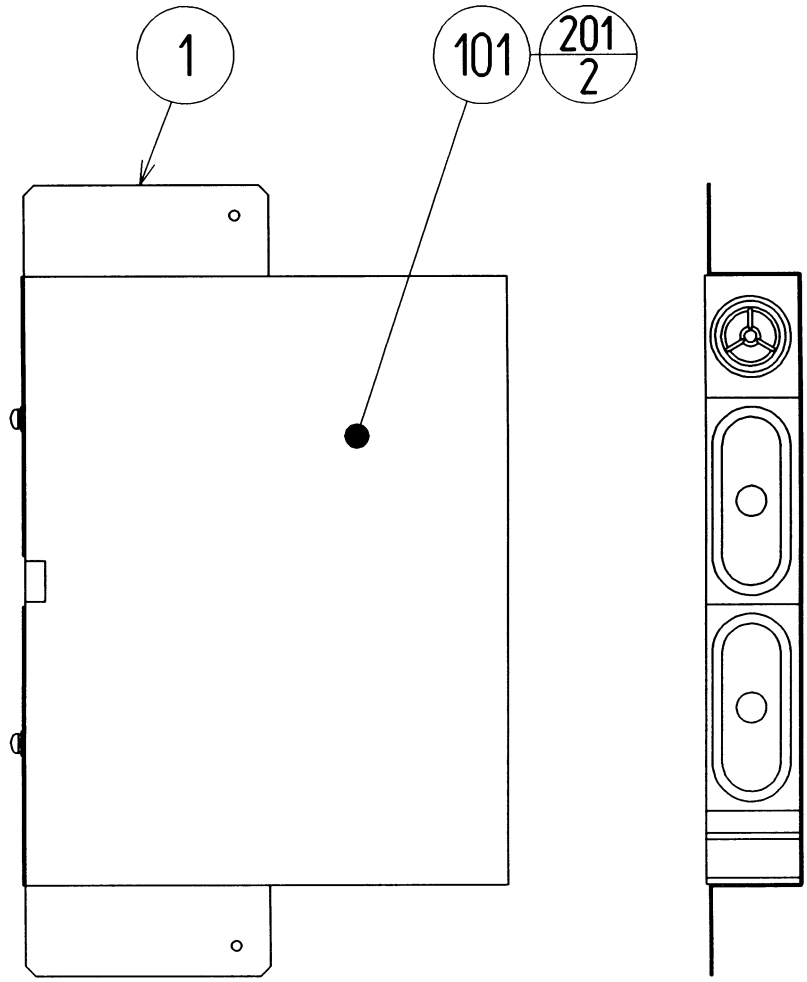
(17) ASSY MONITOR COVER L (MRF-1550)



SECTION A-A

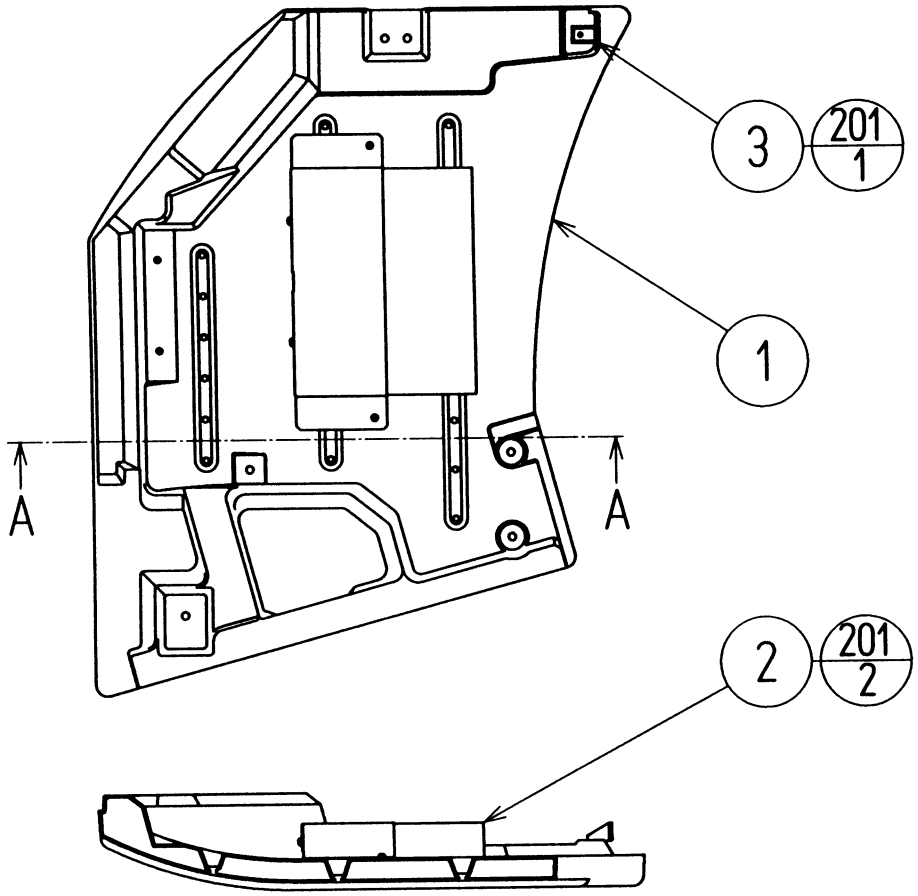
ITEM NO.	PART NO.	DESCRIPTION
1	MRF-1551	COVER PANEL L
2	APC-1560	ASSY SPEAKER L
3	DYN-1032	MASK BRKT
201	000-P00408-W	M SCR PH W/FS M4 X 8

(18) ASSY SPEAKER L (APC-1560)



ITEM NO.	PART NO.	DESCRIPTION
1	APC-1561	SPEAKER BRKT
101	130-5156	SPEAKER BOX 8OHM 20W
201	000-P00512-W	M SCR PH W/FS M5 X 12

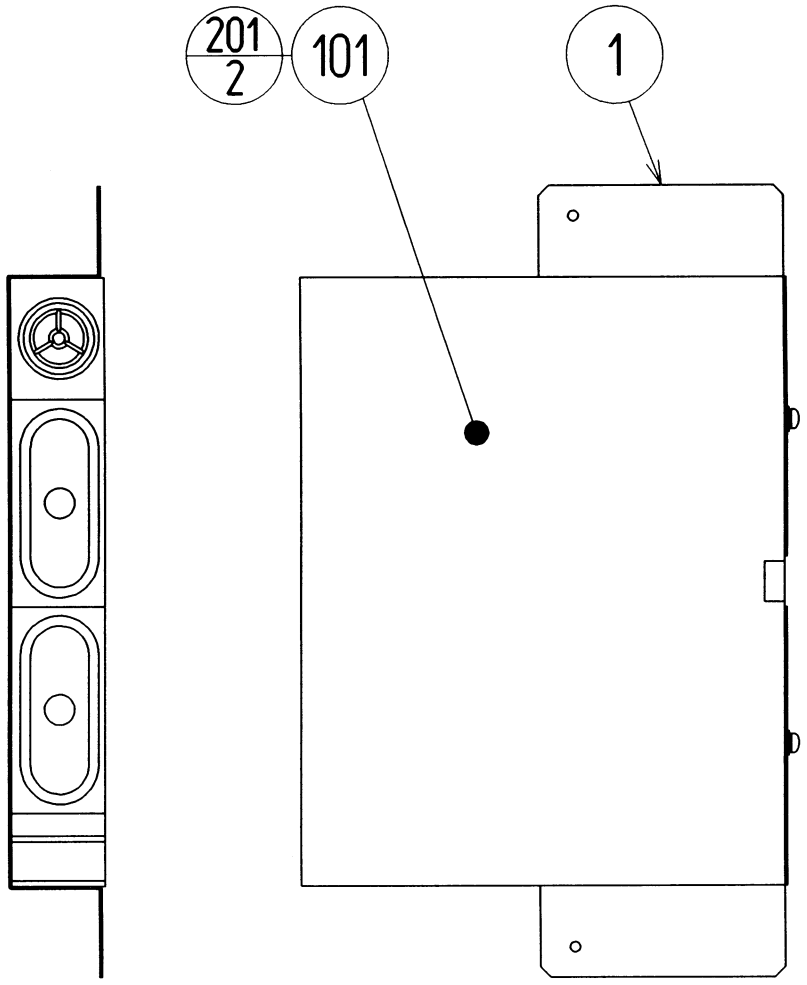
⑲ ASSY MONITOR COVER R (MRF-1555)



SECTION A-A

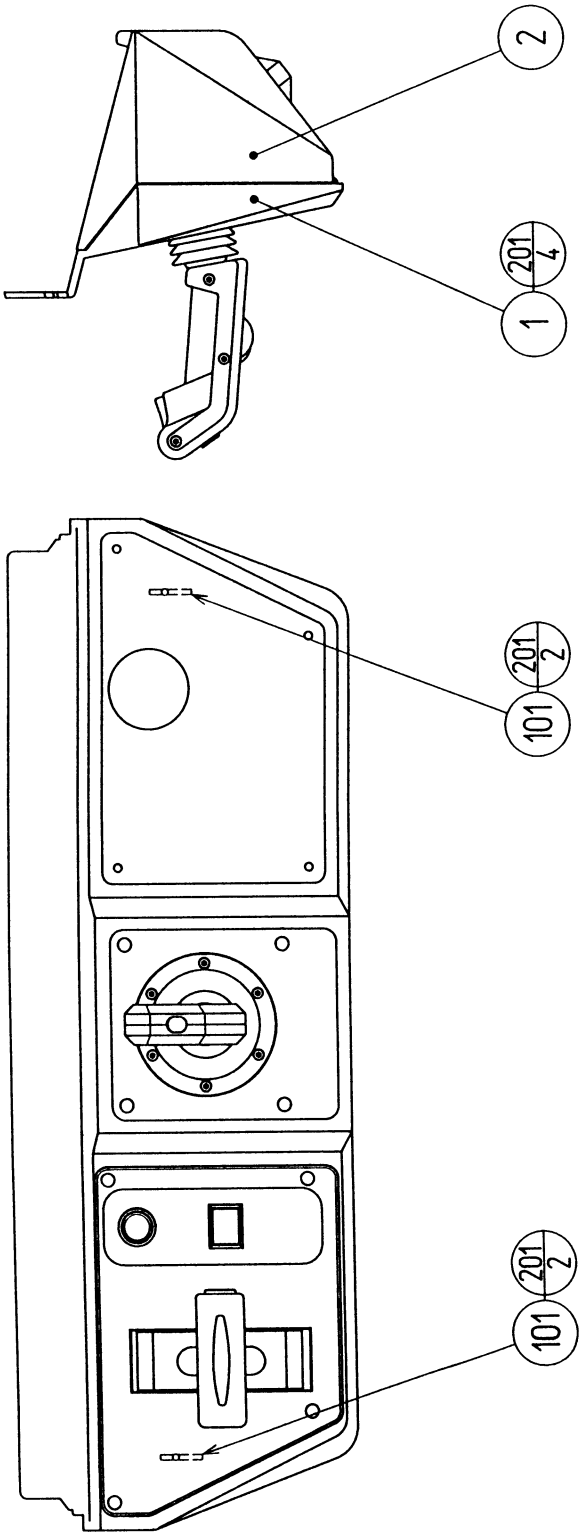
ITEM NO.	PART NO.	DESCRIPTION
1	MRF-1556	COVER PANEL R
2	APC-1565	ASSY SPEAKER R
3	DYN-1032	MASK BRKT
201	000-P00408-W	M SCR PH W/FS M4 X 8

⑳ ASSY SPEAKER R (APC-1565)



ITEM NO.	PART NO.	DESCRIPTION
1	APC-1561	SPEAKER BRKT
101	130-5156	SPEAKER BOX 8OHM 20W
201	000-P00512-W	M SCR PH W/FS M5 X 12

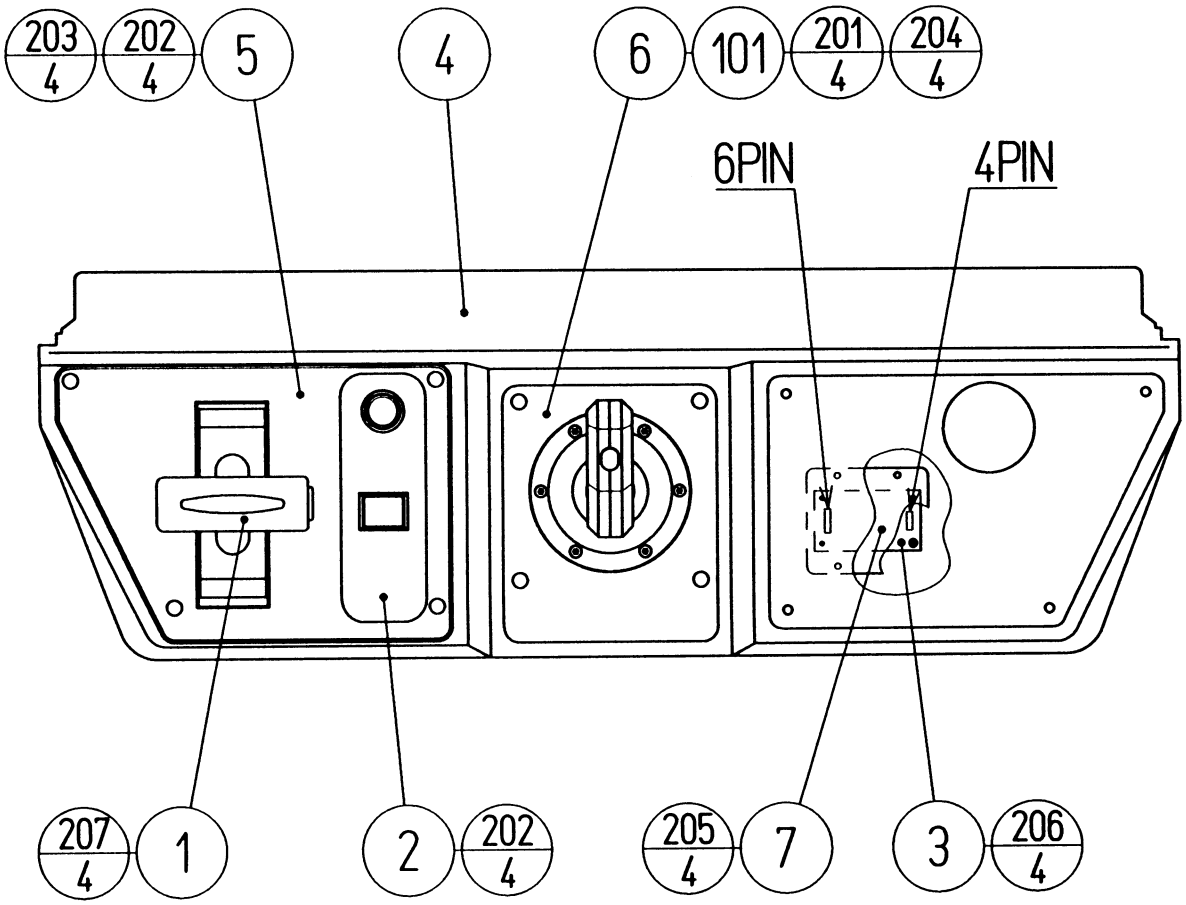
(21) ASSY CONTROL PANEL (MRF-20001) (D-1/2)



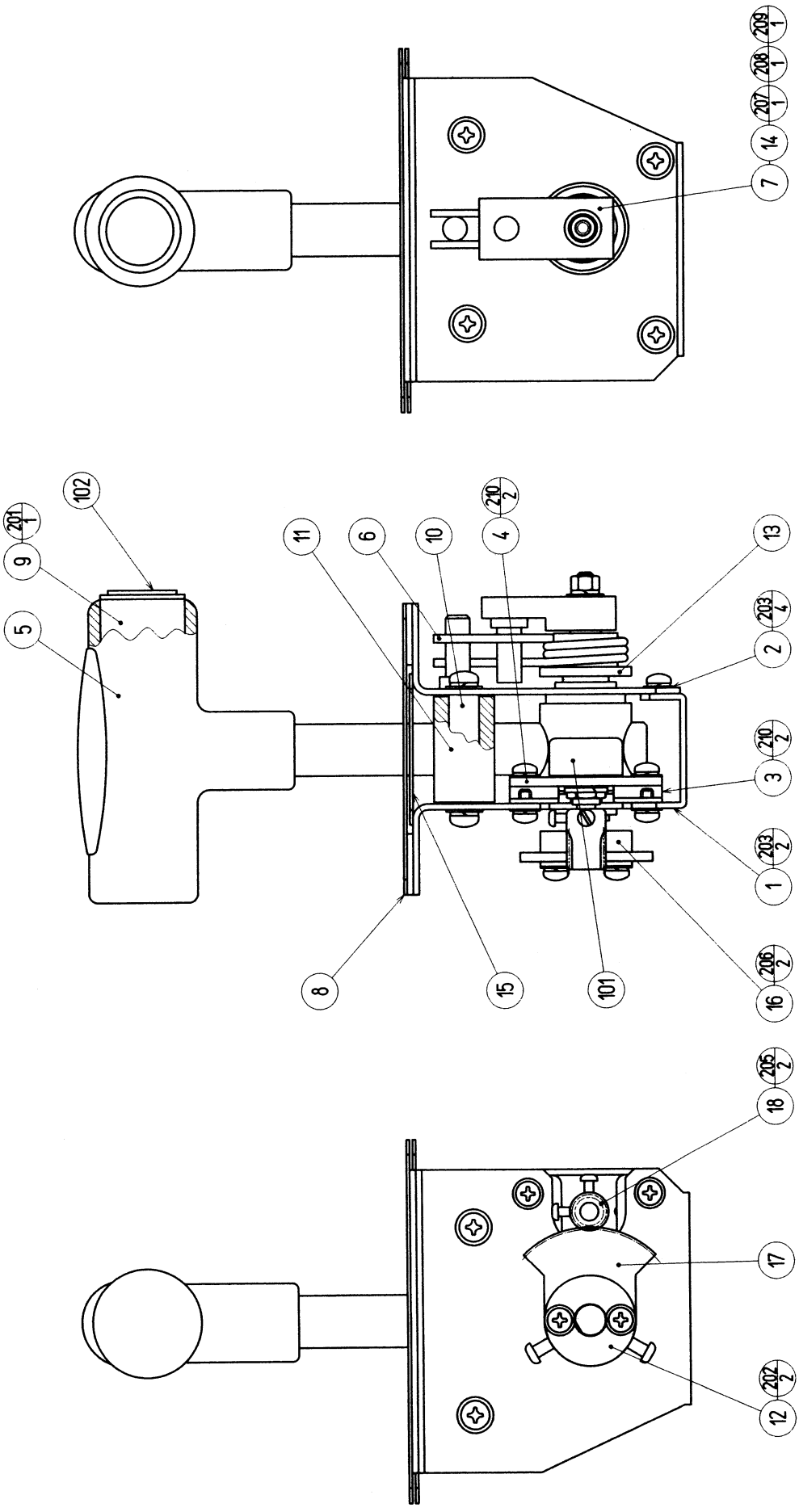
(21) ASSY CONTROL PANEL (MRF-20001) (D-2/2)

ITEM NO.	PART NO.	DESCRIPTION
1	MRF-2200	ASSY CTRL PNL UPPER
2	MSB-2020X	ASSY CONT PNL LOWER
101	601-7365-240	BALL CHAIN L=240
201	000-P00410-W	M SCR PH W/FS M4 X 10
202	050-H00400	HEX NUT M4
203	060-S00400	SPR WSHR M4
204	060-F00400	FLT WSHR M4
301	MRF-61011	WH EARTH CONTROL PANEL
302	MRF-61012	WH INPUT
303	MRF-61013	WH START&VIEW
304	MRF-61014	WH ANALOG
305	MRF-60073	WH ANALOG AMP
306	600-6972-0150	WIRE HARN EARTH ID5 0150MM

(22) ASSY CTRL PNL UPPER (MRF-2200)



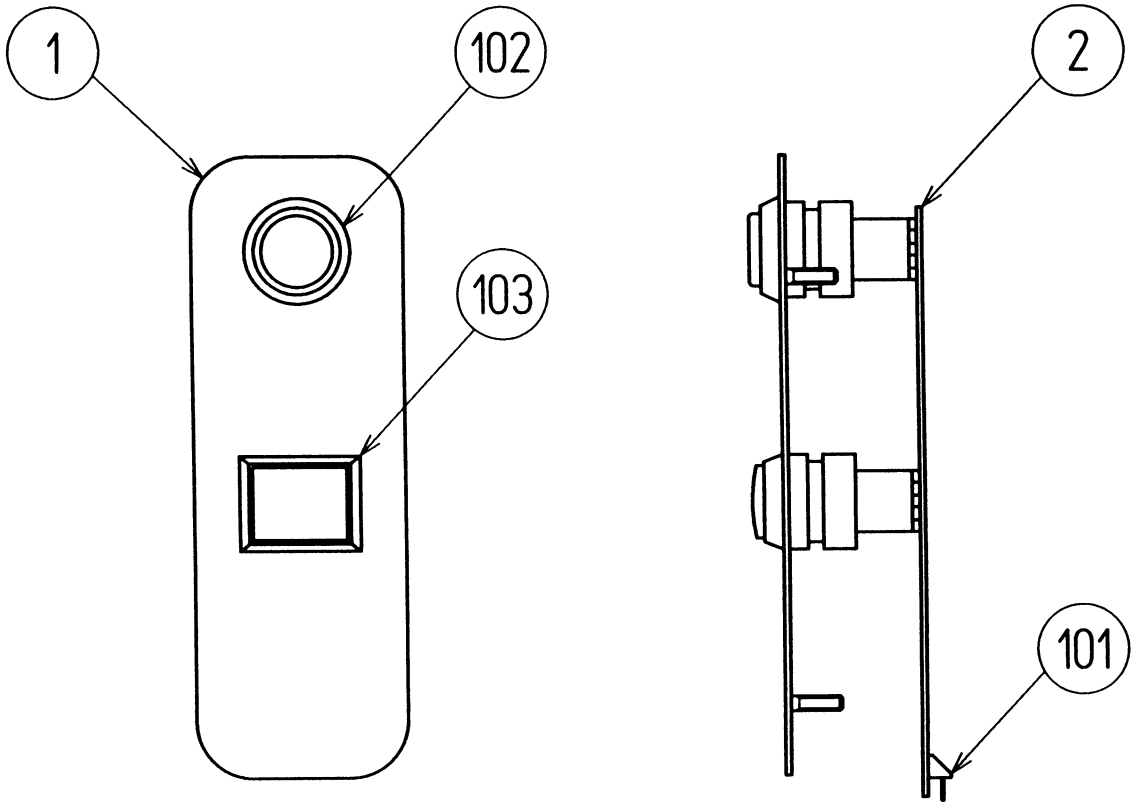
ITEM NO.	PART NO.	DESCRIPTION
1	MRF-2100	ASSY THROTTLE
2	MRF-2250	ASSY VIRTUAL BUTTON
3	839-1187	AMP BD FOR ANALOG JOYSTICK
4	MRF-2201	CTRL PNL UPPER STD
5	MRF-2202-01	PLATE L ENG
6	MRF-2203	PLATE C
7	MRF-2204	AMP BD BRKT
101	610-0619	ASSY ANALOG JOYSTICK MRF
201	050-F00500	FLG NUT M5
202	050-F00400	FLG NUT M4
203	031-000414-0B	CRG BLT BLK M4 X 14
204	031-000514-0B	CRG BLT BLK M5 X 14
205	000-P00308-W	M SCR PH W/FS M3 X 8
206	000-P00320-W	M SCR PH W/FS M3 X 20
207	000-P00512-W	M SCR PH W/FS M5 X 12
301	600-6972-0150	WIRE HARN EARTH ID5 0150MM


SCREW FASTENING TORQUE TO BE
M3 0.8 N•m (8kgf•cm), M3 SET SCREW 1.3 N•m (13kgf•cm)
M4 1.8 N•m (18kgf•cm), M4 SET SCREW 2.5 N•m (25kgf•cm)
M5 3.5 N•m (35kgf•cm)

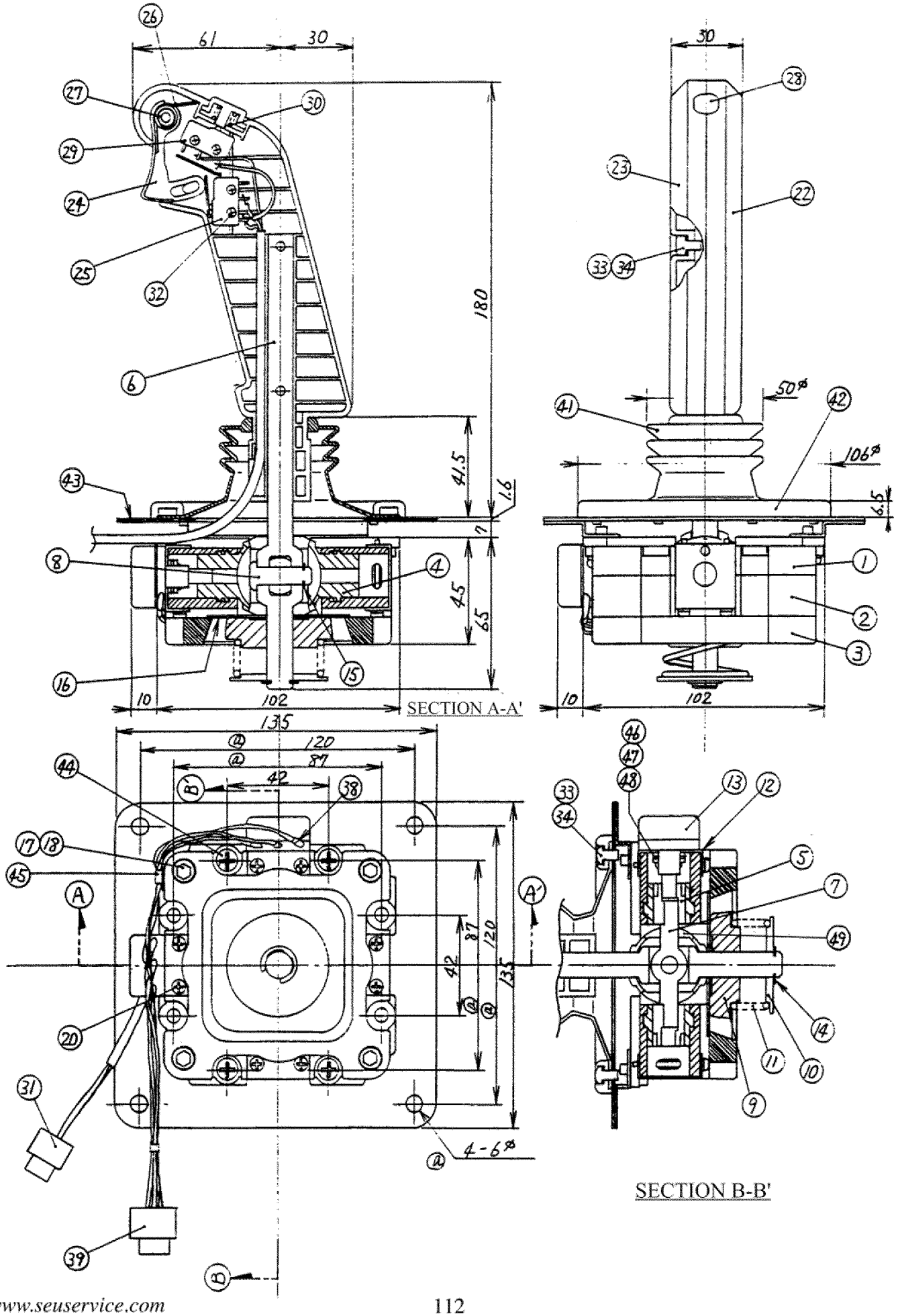
(23) ASSY THROTTLE (MRF-2100) (D-2/2)

ITEM NO.	PART NO.	DESCRIPTION
1	MRF-2101	BASE BRKT L
2	MRF-2102	BASE BRKT R
3	MRF-2103	VR BRKT
4	MRF-2104	INSULATOR PLATE
5	GFR-2101X	THROTTLE LEVER
6	GFR-2105	TORSION SPRING
7	GFR-2106	TORSION BAR
8	GFR-2107	HOLE COVER
9	GLC-2104X	SW COLLAR
10	GLC-2105	STOPPER POST
11	GLC-2106	RUBBER STOPPER
12	GLC-2122	GEAR PLATE
13	GLC-2208	SPACER A
14	GLC-2218	KEY 3 X 3 X 7
15	GLC-2303	SLIDE PLATE A
16	JI-3113	GUIDE RING
17	601-6005	ADJUST GEAR
18	601-7944	GEAR 15
101	220-5373	VOL CONT B-5K
	220-5484	VOL CONT B-5K OHM
102	509-5156-06	SW PUSH BUTTON 1M RED W/O RING
103	310-5029-F20	SUMITUBE F F 20MM
104	280-5275-SR10	CORD CLAMP SR10
201	000-F00408-0B	M SCR FH BLK M4 X 8
202	000-P00412-W	M SCR PH W/FS M4 X 12
203	000-P00510-W	M SCR PH W/FS M5 X 10
204	010-P00308-F	S-TITE SCR PH W/F M3 X 8
205	028-C00308-P	SET SCR CH CUP P M3 X 8
206	028-C00416-P	SET SCR CH CUP P M4 X 16
207	050-H00500	HEX NUT M5
208	060-F00500	FLT WSHR M5
209	060-S00500	SPR WSHR M5
210	000-P00408-W	M SCR PH W/FS M4 X 8
301	MRF-60078	WH THROTTLE SW
302	MRF-60079	WH THROTTLE VOL
303	600-6972-0250	WIRE HARN EARTH ID5 0250MM

(24) ASSY VIRTUAL BUTTON (MRF-2250)



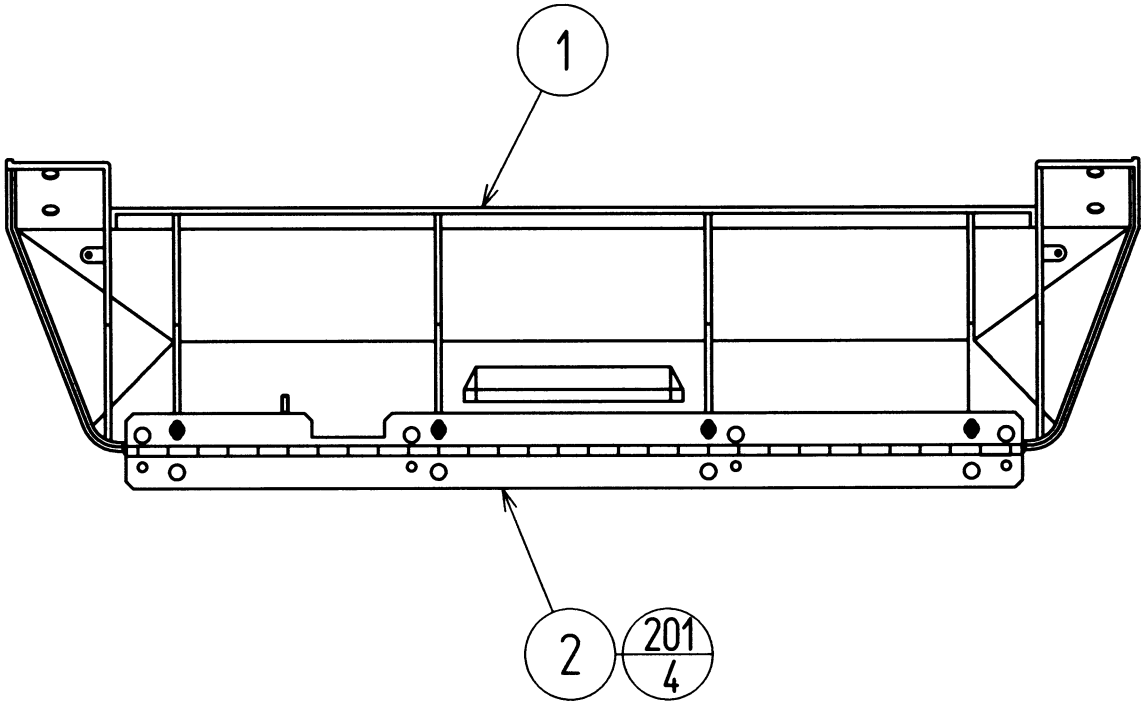
ITEM NO.	PART NO.	DESCRIPTION
1	SDW-2051-A	VR BUTTON BRKT BLANK
2	171-6478B	PC BD LIGHTING SWX5
101	212-5205-12	CONN JST M 12P RTA
102	509-5560-Y	PB SW W/L 6V 1L Y
103	509-5561-S	PB SW W/L 6V 5L S


SECTION A-A'
SECTION B-B'
61
30
180
41.5
1.6
7
4.5
65
10
102
135
120
87
42
4-6Ø
50Ø
106Ø
6.5

(25) ASSY ANALOG JOYSTICK MRF (610-0619) (D-2/2)

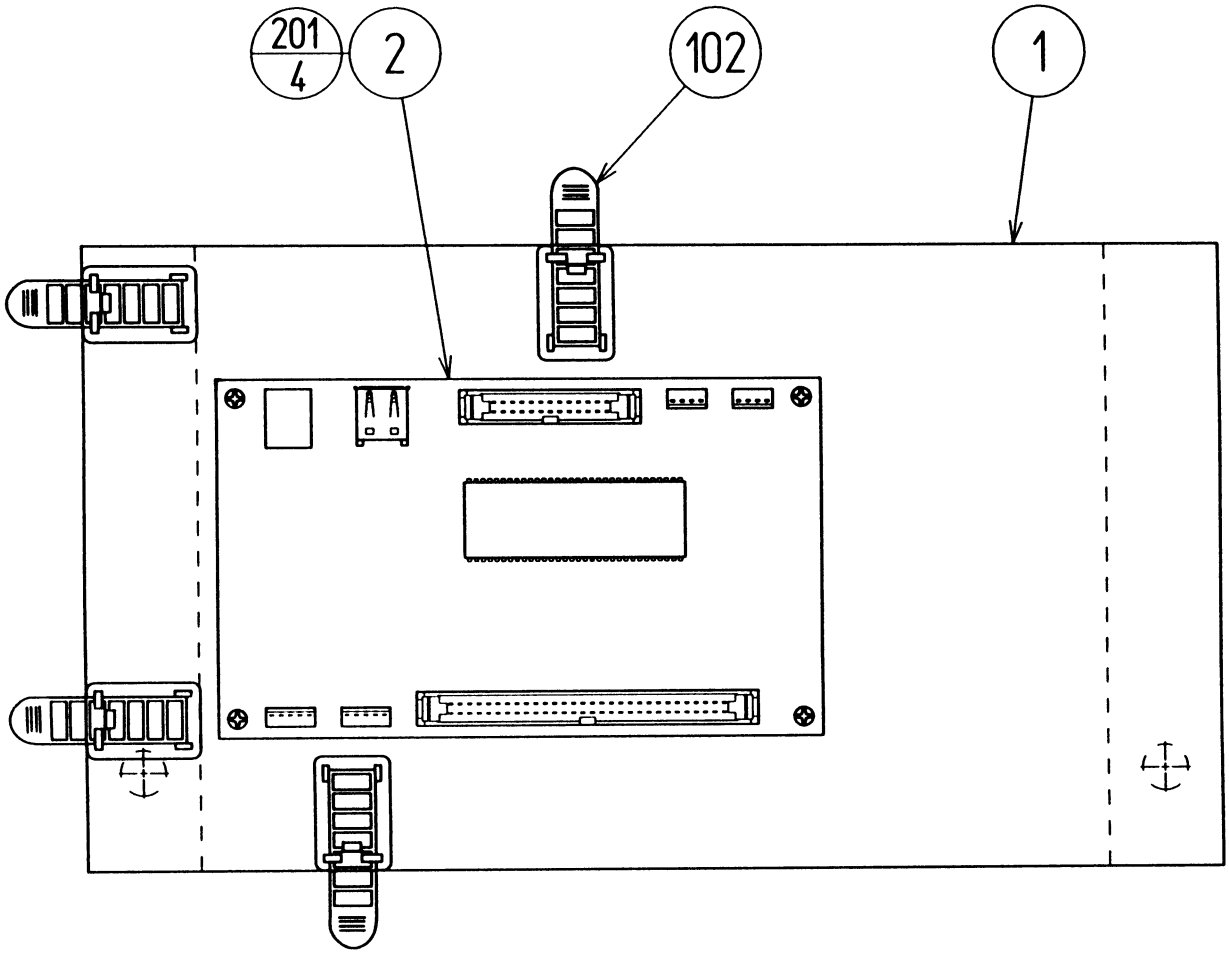
ITEM NO.	PART NO.	DESCRIPTION
1	253-5513	BASE UPR SNE - 08128
2	253-5514	BASE UPR SNE - 09118
3	253-5496	GUIDE PLATE
4	253-5515	DRUM SNE-08127B
5	250-5657	SPACER ASSY
6	123-5109	SHAFT A SNH - 08817D
7	123-5110	SHAFT B SNH - 08818D
8	123-5111	SHAFT C SNH - 08819
9	253-5495	SPR STOPPER 15DEG FOR 610-0619
10	105-5442	SPR END SNH - 08122A
11	125-5212	SPRING
12	105-5443	VR BRKT SNB - 08124C
13	220-5737	VOL CONT B-5K
14	065-E00700	E RING 7MM
15	065-E00500	E RING 5MM
22	253-5497	GRIP COVER A
23	253-5498	GRIP COVER B
24	253-5499	TRIGGER BUTTON
25	509-5975	SW MICRO TYPE SS-5GL
26	125-5213	SPRING TRIGGER
27	250-5658	TRIG SPACER SN - 07177
28	253-5500	TOP BUTTON
29	509-5974	SW MICRO TYPE SS-5
30	125-5214	SPRING TOP
31	600-7241	WH ANALOG JOYSTICK
33	008-P00408-0B	TMP PRF SCR PH BLK M4 X 8
34	060-S00400	SPR WSHR M4
41	280-6624	RUBBER COVER
42	102-0063	COV FR SNE - 10067A
43	117-5420	BASE PLATE FOR 610-0619
49	117-5422	SHAFT WASHER

(26) ASSY CONT PNL LOWER (MSB-2020X)

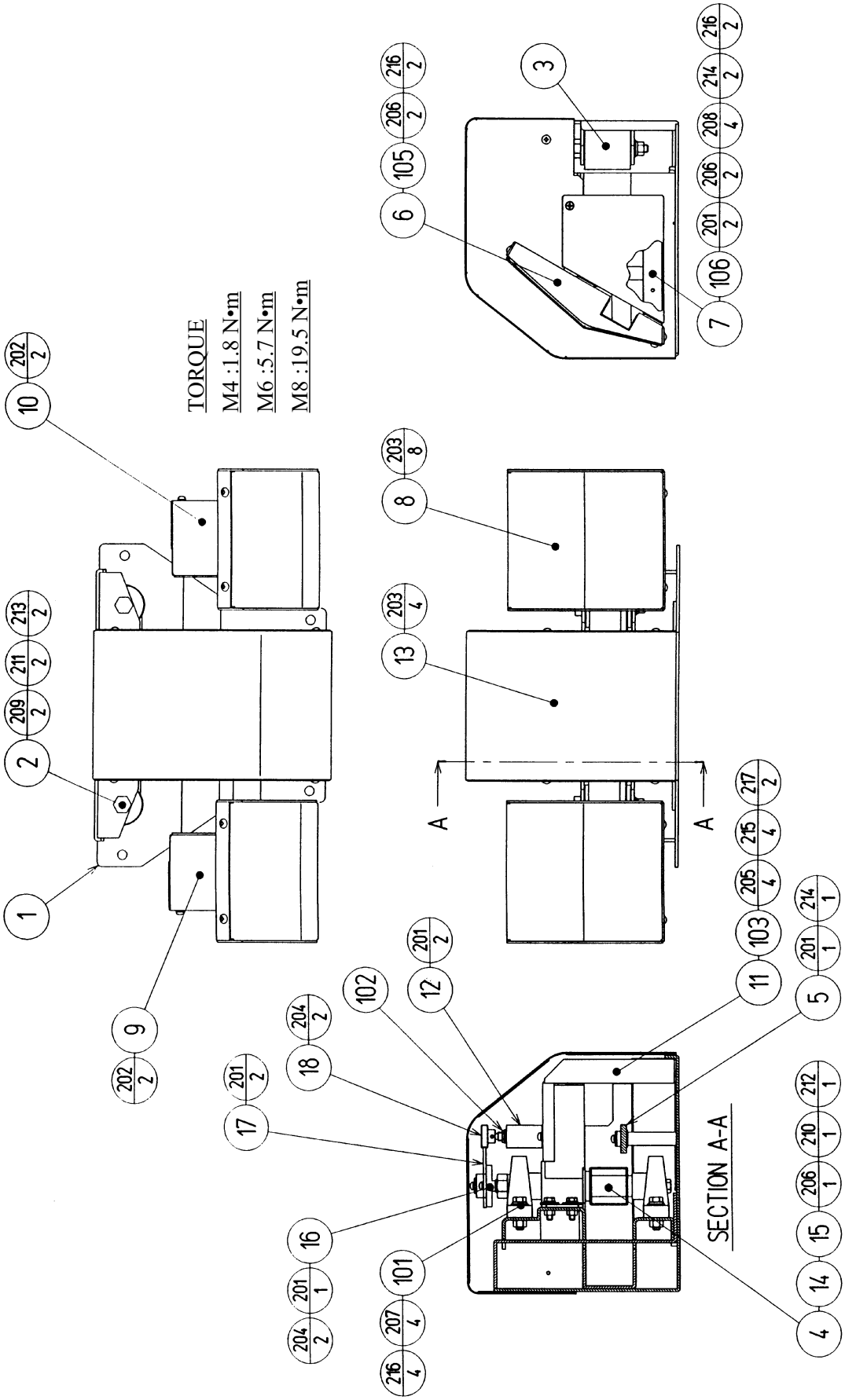


ITEM NO.	PART NO.	DESCRIPTION
1	MSB-2021	CONT PNL LOWER
2	MSB-2022Y	HINGE 600
201	000-P00410-W	M SCR PH W/FS M4 X 10

(27) ASSY CTRL BD (MRF-4400)



ITEM NO.	PART NO.	DESCRIPTION
1	MRF-4401	CTRL BD BASE
2	837-13551-92	I/O CONTROL BD FOR JVS
101	601-0460	PLASTIC TIE BELT 100 MM
102	280-6600	CORD CLAMP TL-20W
201	011-P00325	TAP SCR PH 3 X 25
301	POD-61022	WIRE HARN I/O BD PWR
302	MRF-61005	WH RA60P
303	MRF-61006	WH RA26P


TORQUE
M4 :1.8 N•m
M6 :5.7 N•m
M8 :19.5 N•m
SECTION A-A
A
A

(28) PEDAL UNIT (APC-2200) (D-2/2)

ITEM NO.	PART NO.	DESCRIPTION
1	APC-2201X	PEDAL BASE
2	APC-2202	STOPPER SHAFT
3	APC-2203	STOPPER RUBBER
4	APC-2204	MAIN PIPE
5	APC-2205	ARM
6	APC-2206	PEDAL UPPER
7	APC-2207	PEDAL LOWER
8	APC-2208	PEDAL COVER
9	APC-2209X	PEDAL REAR L
10	APC-2210X	PEDAL REAR R
11	APC-2211	ROSTA BRKT
12	APC-2212	VOL BRKT
13	APC-2213	PEDAL MECHA COVER
14	AIN-2108	RING
15	SAS-1178	FLT WSHR BLK 8.5-30 X 2
16	TTR-2010	GEAR HOLDER 110
17	601-6450	GEAR 110
18	601-6555	GEAR Z=30 M=0.75
101	100-5120	BEARING
102	220-5484	VOL CONT B-5K OHM
	220-5373	VOL CONT B-5K
103	601-8917	ROSTA 22
104	280-5275-SR10	CORD CLAMP SR10
105	100-5168	BEARING 20
106	100-5070	BEARING 15
201	000-P00410-W	M SCR PH W/FS M4 X 10
202	000-P00408-WB	M SCR PH W/FS BLK M4 X 8
203	000-T00408-0B	M SCR TH BLK M4 X 8
204	028-A00410-P	SET SCR HEX SKT CUP P M4 X 10
205	030-000620-S	HEX BLT W/S M6 X 20
206	030-000816-S	HEX BLT W/S M8 X 16
207	030-000830-S	HEX BLT W/S M8 X 30
208	050-F00400	FLG NUT M4
209	050-H00800	HEX NUT M8
210	050-H01400	HEX NUT M14
211	060-S00800	SPR WSHR M8
212	060-S01400	SPR WSHR M14
213	060-F00800	FLT WSHR M8
214	068-441616	FLT WSHR 4.4-16 X 1.6
215	068-652016	FLT WSHR 6.5-20 X 1.6
216	068-852216	FLT WSHR 8.5-22 X 1.6
217	050-F00600	FLG NUT M6
218	000-P00406-S	M SCR PH W/S M4 X 6
219	060-F00400	FLT WSHR M4
301	APC-60081	WIRE HARN RUDDER

(29) ASSY WIRE DC COCKPIT (MRF-6103)

ASSY WIRE DC COCKPIT (MRF-6103) is comprised of the following wire harnesses.
An ASSY DRG. is unavailable.

ITEM NO.	PART NO.	DESCRIPTION
101	601-0460	PLASTIC TIE BELT 100 MM
301	HRT-60012	WH FRONT SPEAKER EXT
302	POD-61015	WIRE HARN DC PWR EXT B
303	POD-61016	WIRE HARN COIN CHUTE EXT
304	MRF-61007	WH I/O EXT
305	MRF-61008	WH ANALOG EXT
306	MRF-61010	WH EARTH COCKPIT PANEL
307	600-6972-1050	WIRE HARN EARTH ID5 1050MM
308	600-6972-1350	WIRE HARN EARTH ID5 1350MM

20. WIRE COLOR CODE TABLE

THE WIRE COLOR CODE is as follow:

A	PINK
B	SKY BLUE
C	BROWN
D	PURPLE
E	LIGHT GREEN

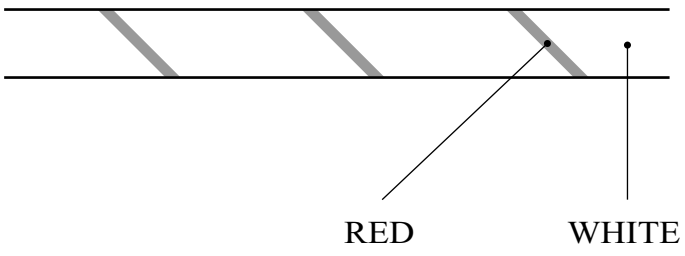
Wires other than those of any of the above 5 single colors will be displayed by 2 alphanumeric characters.

1	RED
2	BLUE
3	YELLOW
4	GREEN
5	WHITE
7	ORANGE
8	BLACK
9	GRAY

If the right-hand side numeral of the code is 0, then the wire will be of a single color shown by the left-hand side numeral (see the above).

Note 1: If the right-hand side alphanumeric is not 0, that particular wire has a spiral color code. The left-hand side character shows the base color and the right-hand side one, the spiral color.

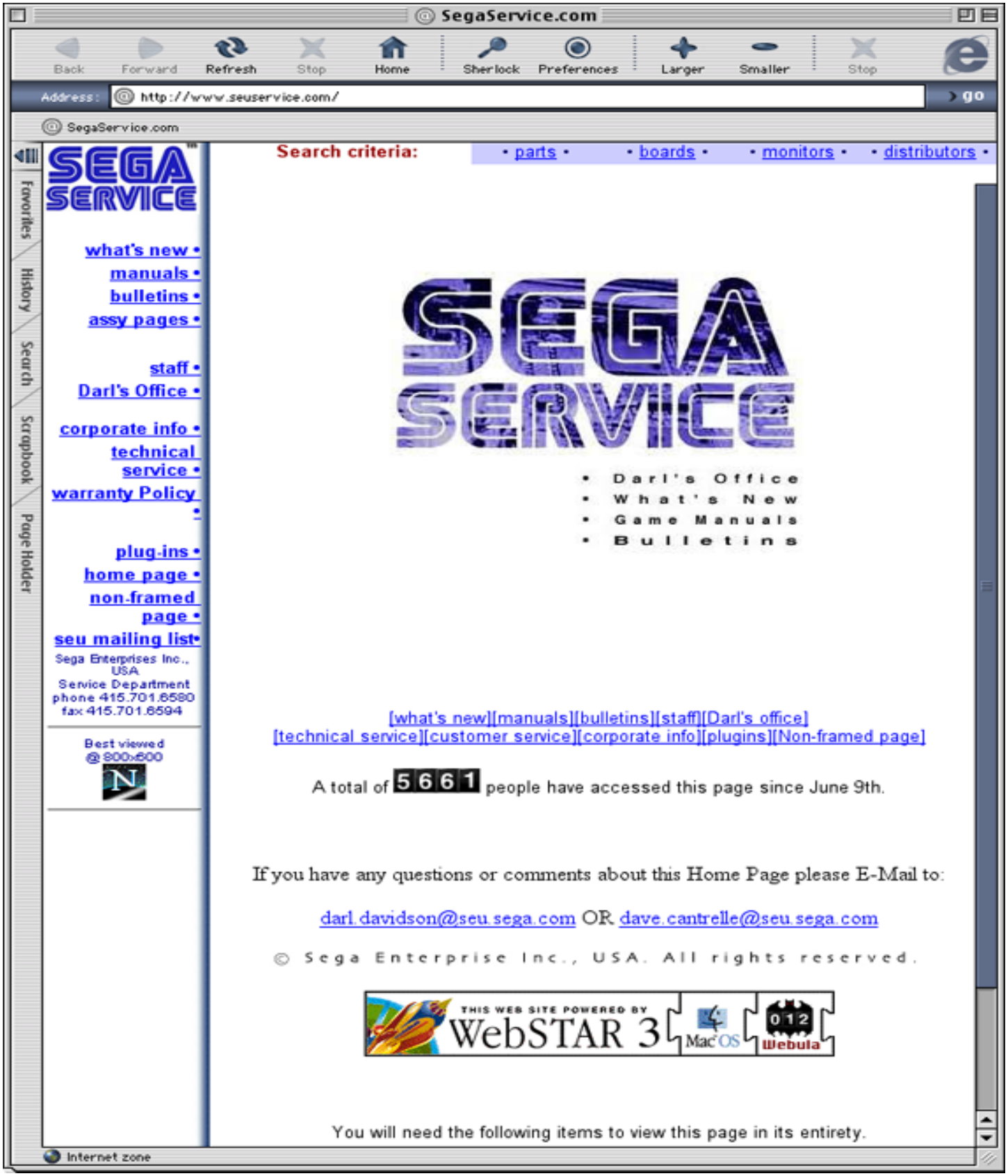
<Example> 51 ..... WHITE / RED



Note 2: The character following the wire color code indicates the size of the wire.

U:	AWG16
K:	AWG18
L:	AWG20
None:	AWG22

VISIT OUR WEBSITE!



SEGA ENTERPRISES, INC. (USA)

45133 Industrial Drive
Fremont, CA 94538
(415) 701-6580 phone
(415) 701-6594 fax